



**School of Health Care and Paramedics**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1301**

**Time: 2 Hours**

**Course Name: Communication and Techniques**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

**10X01 = 10 Marks**

- Q.1. .... Is the person who notices and decodes and attaches some meaning to a message:
- |             |            |
|-------------|------------|
| a) Receiver | b) Driver  |
| c) Sender   | d) Cleaner |
- Q.2. The response to a sender's message is called:
- |                |             |
|----------------|-------------|
| a) Information | b) Feedback |
| c) Media       | d) Noise    |
- Q.3. .... Refers to all these factors that disrupt the communication:
- |           |                  |
|-----------|------------------|
| a) Nobody | b) Nowhere       |
| c) Noise  | d) None of above |
- Q.4. The factor which is not included in essential communication:
- |             |             |
|-------------|-------------|
| a) Receiver | b) Response |
| c) Sender   | d) Noise    |
- Q.5. .... Communication includes tone of voice body language, facial expression etc:
- |              |           |
|--------------|-----------|
| a) Nonverbal | b) Verbal |
| c) Letter    | d) Noise  |
- Q.6. The information which is transferred to the receiver has to be interpreted this process is called:
- |             |             |
|-------------|-------------|
| a) Encoding | b) Receiver |
| c) Decoding | d) Feedback |
- Q.7. Letter, e-mail, and telephone are examples of:
- |            |             |
|------------|-------------|
| a) Message | b) Feedback |
| c) Channel | d) Encoding |
- Q.8. The oral communication there is a possibility of immediate.....
- |              |             |
|--------------|-------------|
| a) Reaction  | b) Response |
| c) Refection | d) Reset    |



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Q.9. The message may be misinterpreted because of:

- a) Distortions
- b) Distraction
- c) Noise
- d) Barriers

Q.10. Tick the right answer of example active listening:

- a) Patient always accepted & respected
- b) Help to patient for their condition
- c) You seem upset when I said
- d) Don't over load the partial

### Section – B

04X04 = 16 Marks

- Q.1. Explain the repeat, listen, focus and need thinks of verbal communication.
- Q.2. Define communication. Explain the importance of communication.
- Q.3. What do you mean by non-verbal communication?
- Q.4. What are greatest challenges to good communication.

### Section – C

04X06 = 24 Marks

- Q.1. Explain the Johari window.
- Q.2. Describe the 7 C's communication.
- Q.3. Explain the effective communication techniques.
- Q.4. Enlist the psychological barriers.

*K. Kour*



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## Section – B

04X04 = 16 Marks

Q.1. Explain the repeat, listen, focus and need thinks of verbal communication.

<b>Think</b>	What is the clearest and most concise way i can communicate with this patient, for example, breaking down information into manageable chunks.
<b>Repeat</b>	Therefore, I may have to repeat or rephrase what i said a number of times.
<b>Focus</b>	On your body language: when speaking face to face with a patient your body language can play a more significant role than you imagine and can communicate far more than the words you use.
<b>Listen</b>	Not only listen to what the patient says to you but also listen for the message the patient may give either through the questions they ask or through any comment they may make. remember even if the patient says nothing and asks no questions, this is a communication which

Q.2. Define communication. Explain the importance of communication.

### Definition

According to "Oxford dictionary "The Imparting or exchanging of Information by Speaking, writing, or using some other medium...The Successful conveying or sharing if ideas and feeling. Thus we can say that communication is the process of transmitting the information or ideas from one person to another person in such a way that the other person, who receives the information can understand it easily.

### Importance Communication

#### The Basis of Co-ordination

The manager explains to the employees the organizational goals, modes of their achievement and also the interpersonal relationships amongst them. This provides coordination between various employees and also departments. Thus, communications act as a basis for coordination in the organization.

#### Fluent Working

A manager coordinates the human and physical elements of an organization to run it smoothly and efficiently. This coordination is not possible without proper communication.

#### The Basis of Decision Making

Proper communication provides information to the manager that is useful for decision making. No decisions could be taken in the absence of information. Thus, communication is the basis for taking the right decisions.



### **Increases Managerial Efficiency**

The manager conveys the targets and issues instructions and allocates jobs to the subordinates. All of these aspects involve communication. Thus, communication is essential for the quick and effective performance of the managers and the entire organization.

### **Increases Cooperation and Organizational Peace**

The two-way communication process promotes co-operation and mutual understanding amongst the workers and also between them and the management. This leads to less friction and thus leads to industrial peace in the factory and efficient operations.

### **Boosts Morale of the Employees**

Good communication helps the workers to adjust to the physical and social aspect of work. It also improves good human relations in the industry. An efficient system of communication enables the management to motivate, influence and satisfy the subordinates which in turn boosts their morale and keeps them motivated.

### **Q.3. What do you mean by non-verbal communication?**

#### **Non verbal Communication**

Nonverbal communication is mediated through the language of our body. Posture, eye contact, facial expressions are examples of nonverbal communication. Nonverbal communication is complex and is influenced by many factors. It is a powerful means of communication that has the capacity to reinforce what is said. Nonverbal communication is part and parcel of all communication and in some cases is far more powerful than the words used. A question to ask is; when I am with a patient how sensitive am I and how aware am I of my body language and how is this contributing or interfering with what I want the patient to hear?

### **Q.4. What are greatest challenges to good communication.**

- people who think communication is about what you say, versus how you say it
- people who focus too much on being heard, instead of listening to others
- people who use the wrong channel to send a message, such as choosing to discuss a difficult situation with someone else through a weak channel such as text, email, or through someone else
- not re-evaluating whether effective communication is happening, checking to see if people actually understood what was said.

## **Section – C**

04X06 = 24 Marks

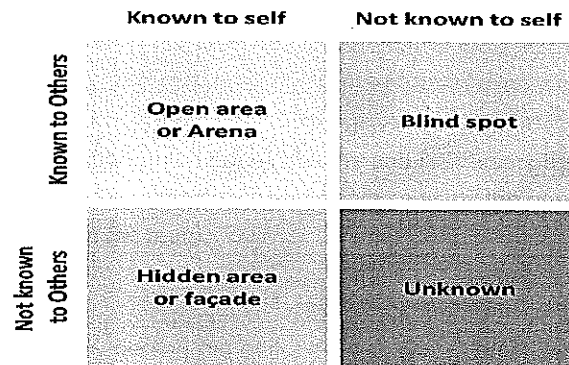
### **Q.1. Explain the Johari window.**

#### **Johari Window**

The **Johari window** is a technique that helps people better understand their relationship with themselves and others. It was created by psychologists Joseph Luft (1916–2014) and Harrington Ingham (1916–1995) in 1955, Luft and Ingham named their model "Johari" using a combination of their first names.



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## The Johari Window Model

The **JOHARI Window** provides a useful format for representing personal and/or group information such as feelings, experiences, views, attitudes, skills, intentions, motivation, etc. from four perspectives. The labels refer to 'self' and 'others': 'self' means oneself while 'others' means other people in the person's group or team. It is an excellent tool for comparing self-perception to public perception and becoming a guide map developmental improvements.

### The Four Quadrants

Called 'regions' or 'areas' or 'quadrants'. Each contains and represents the information - feelings, motivation, etc. - in terms of whether the information is known or unknown by the person, and whether the information is known or unknown by others in the team

#### Open/self-area or arena

Here the information about the person his attitudes, behaviour, emotions, feelings, skills and views will be known by the person as well as by others. The arena is the information that you know about yourself and that others also know. It is the obvious things, e.g. race, name, height, weight, etc. It is those things that you told others when you introduced yourself to the class. It is also those feelings that you have shared during the "Thought for the Day," learning styles, communication process, and the personality lessons.

#### Hidden Area

The hidden area contains all that information that we don't want others to know about us. It's that closet of feelings, insecurities, and not-so-great experiences. It's the private information.

#### Blind Spot

The blind spot is the information that others know about you, but you don't know about yourself. A funny example is the female student whose husband told her she snores. She didn't think she did, but he knew she did.

#### Unknown Area

The unknown area contains information that you don't know and others don't know. It could be abilities and potentials that you have not discovered about yourself yet. An example could be that you might be a great salesperson or customer service representative, but for now you don't know whether you have that ability or

## Q.2. Describe the 7 C's communication.

### 7 C's of Communication

The **7 C's of Communication** is a checklist that helps to improve the professional communication skills and increases the chance that the message will be understood in exactly the same way as it was intended.

#### 1. Clear

The message should be clear and easily understandable to the recipient. The purpose of the communication should be clear to sender then only the receiver will be sure about it. The message should emphasize on a



single goal at a time and shall not cover several ideas in a single sentence.

## **Correct**

The message should be correct, i.e. a correct language should be used, and the sender must ensure that there is no grammatical and spelling mistakes. Also, the message should be exact and well-timed. The correct messages have a greater impact on the receiver and at the same time, the morale of the sender increases with the accurate message.

## **Complete**

The message should be complete, i.e. it must include all the relevant information as required by the intended audience. The complete information gives answers to all the questions of the receivers and helps in better decision-making by the recipient.

## **Concrete**

The communication should be concrete, which means the message should be clear and particularly such that no room for misinterpretation is left. All the facts and figures should be clearly mentioned in a message so as to substantiate to whatever the sender is saying.

## **Concise**

The message should be precise and to the point. The sender should avoid the lengthy sentences and try to convey the subject matter in the least possible words. The short and brief message is more comprehensive and helps in retaining the receiver's attention.

## **Consideration**

The sender must take into consideration the receiver's opinions, knowledge, mindset, background, etc. in order to have an effective communication. In order to communicate, the sender must relate to the target recipient and be involved.

## **Courteous**

It implies that the sender must take into consideration both the feelings and viewpoints of the receiver such that the message is positive and focused at the audience. The message should not be biased and must include the terms that show respect for the recipient.

### **Q.3. Explain the effective communication techniques.**

#### **Effective Communication Technique**

For any communication to be effective the nurse should be 'familiar with the patient's needs, pick up the cues from the patient, give the right information at the right kind of pace'. To achieve this, the following skills should be developed:

<b>Respecting the Person</b>	Always remember that patients feel vulnerable. acknowledging this goes a long way towards helping the patient deal healthily with their condition and treatment.
<b>Listening</b>	Patients should not be stereotyped or interrupted when they speak. if the patient is stereotyped, then the information is not tailored to the patient as a unique individual. if there are frequent interruptions, then the patient may feel they are not being listened to.
<b>Teaching new Information</b>	Giving information should always be given in terms the patient can understand. if medical terminology is used its meaning should always be explained to the patient. never assume that the patient understands the medical terminology used. a picture, or an analogy can prove very effective in helping the patient understand what is being communicated.
<b>Managing Expectations</b>	Patients will have many expectations about their diagnosis and treatment. it is important to recognise these and encourage the patient to talk about their expectations, some of which may be unreal, so that the patient is enabled to understand what is happening and why.



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<b>Remain Focused</b>	What is the objective of the communication? it is to; provide information, clarify something not understood or modification of the patient's behaviour?
<b>Building Trust</b>	Establishing a relationship of trust will allow for clearer and more open lines of communication.

### Q.4. Enlist the psychological barriers.

#### Psychological Barriers

The **Psychological or Emotional Barriers** refers to the psychological state i.e. Opinions, attitudes, status consciousness, emotions, etc. of a person that deeply affects the ability to communicate. Communication largely depends on the mental condition of a person, if the person is not mentally or emotionally sound, then he cannot communicate effectively either as a sender or a receiver

Lack of Attention	When the person is pre-occupied by some other things and do not listen carefully what the other person is speaking, then arises the psychological barrier in the communication. When the person does not listen to others, then he won't be able to comprehend the message as it was intended and will not be able to give proper feedback.
Premature Evaluation	Many people have a tendency to jump to the conclusions directly and form judgments without considering all the aspects of information. This is generally done by the people who are impatient and resort to a selective listening. This premature evaluation of the information acts as a barrier to the effective communication and lowers the morale of the sender.
Poor Retention	The retention refers to the capacity of a brain to retain or store things in the memory. The brain does not store all the information came across but in fact, retain only those which deems to be helpful in the future. Therefore, much of the information gets lost during the retention process, and this acts as a barrier to the effective communication.
Loss by Transmission	The loss by transmission means, whenever the information exchanges hand its credibility reduces. It is most often observed in the case of an oral communication where people handle information carelessly and transmits the information which has lost some of its truth. Thus, the improper and lack of information being transmitted to others acts as a hindrance in the communication process.
Distrust	To have an effective communication, it is must that both the communicators (sender and receiver) trust each other. In case there is a lack of trust between both the parties, then they will tend to derive negative meaning out of the message and often ignore what has been communicated. If the receiver has no trust, then he will not listen to whatever is being said by the sender, and this will result in a meaningless communication.
Emotion	The communication is greatly influenced by the emotions of a person. If a person is not in a good temperament, then he would not listen properly to whatever is said and might say things offending the sender. Several other emotions such as anger, nervousness, confusion, restlessness, etc. affects the communication process.







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**Section – A**

**10X01 = 10 Marks**

**Q.1. In the process of communication, the process by which the receiver deciphers?**

- |             |             |
|-------------|-------------|
| a) Decoding | b) Feedback |
| c) Encoding | d) Message  |

**Q.2. The type of communication which are very useful in nursing profession are:**

- |  |                             |
|--|-----------------------------|
| a) Verbal communication                | b) Non-verbal communication |
| c) Verbal and non-verbal communication | d) None of above            |

**Q.3. Personal barriers in effective communication do not include:**

- |               |            |
|---------------|------------|
| a) Language   | b) Rumours |
| c) Impatience | d) Age     |

**Q.4. The factor which is not included in essential communication:**

- |             |             |
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| a) Receiver | b) Response |
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**Q.5. Response form a receiver to sender is known as:**

- |             |             |
|-------------|-------------|
| a) Message  | b) Context  |
| c) Feedback | d) Stimulus |

**Q.6. ....means to impart of understanding of the message:**

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| a) Encoding | b) Receiver |
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**Q.7. Which of the following is not a 2-way communication?**

- |                     |                     |
|---------------------|---------------------|
| a) Lecture          | b) Panel discussion |
| c) Group discussion | d) Symposium        |

**Q.8. Communication process is influenced by except:**

- |               |                       |
|---------------|-----------------------|
| a) Motivation | b) Attitude           |
| c) Anger      | d) Culture difference |



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Q.9. Which is not the elements of communication?

- a) Message
- b) Sender
- c) Attention
- d) Channel

Q.10. Tick the right answer of example active listening:

- a) Patient always accepted & respected
- b) Help to patient for their condition
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### Section – B

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Q.1. Explain the tone, listen, check and aware thinks of verbal communication.

Q.2. Define communication. Explain the attitude in barrier to effectiveness of communication.

Q.3. Difference between the informative and supportive

Q.4. What are greatest challenges to good communication.

### Section – C

04X06 = 24 Marks

Q.1. Explain the elements nonverbal communication.

Q.2. Describe the process of communication.

Q.3. Explain the effective communication techniques.

Q.4. What do you mean emotional barriers? Describe the importance of communication.

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### Section – B

04X04 = 16 Marks

Q.1. Explain the tone, listen, check and aware thinks of verbal communication.

Check	How am I going to check that the patient has grasped clearly the information given when verbally communicating with the patient be aware of.
Tone	The way you say something; the tone you use will influence how your message is received by the patient. if your tone is too aggressive the patient may feel intimidated and less inclined to ask questions or respond. if your tone is too soft, then the patient may not take seriously what you are saying.
Think	What is the clearest and most concise way i can communicate with this patient, for example, breaking down information into manageable chunks.
Listen	Not only listen to what the patient says to you but also listen for the message the patient may give either through the questions they ask or through any comment they may make. remember even if the patient says nothing and asks no questions, this is a communication which may be significant and therefore should be checked out. a possible question could be; can you recall what it is i said to you?
Aware	Are they likely to be stressed or anxious or have other issues that mean they may not be able to take in the information.

Q.2. Define communication. Explain the attitude in barrier to effectiveness of communication.

According to "Oxford dictionary "The Imparting or exchanging of Information by Speaking, writing, or using some other medium...The Successful conveying or sharing if ideas and feeling. Thus we can say that communication is the process of transmitting the information or ideas from one person to another person in such a way that the other person, who receives the information can understand it easily

Keith Davis	Communication is a process of passing information and understanding from one person to another.
John Adair	Communication is essentially the ability of one person to make contact with another and make himself or herself understood.
William Newman Charles Summer	Communication is an exchange of ideas, facts, opinions or emotions of two or more persons.
Louis Allen	Communication is a bridge of meaning. It involves a systematic and continuous process of telling, listening and understanding.
Peter Little	Communication is a process by which information is transmitted between individuals and / or organizations so that an understanding response results.



Murphy,  
Hildebrandt &  
Thomas

Communication is a process of transmitting and receiving verbal and non-verbal messages. It is considered effective when it achieves the desired response or reaction from the receiver.

<b>Attitude</b>	<ul style="list-style-type: none"> <li>• Assuming you know what is best for the patient without consulting them.</li> <li>• Feeling you should be responsible for everything.</li> <li>• Imposing your values, expectations and opinions on the patient.</li> <li>• Not asking the patient what they know.</li> <li>• Letting resentment or irritation dictate how you care for the patient.</li> </ul>
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**Q.3. Difference between the informative and supportive.**

**Informative**

Be clear about what information is to be given. Pick a time and place that will allow for effective communication. Decide how much information needs to be given? Decide on what is the optimum way to give the information. Is it to be given face to face, by telephone, via email, or text?

**Supportive**

Supporting patients means accepting the patient as they are and not rushing to judgement. In this style of communication, the following may be of some help;

- Listen actively and give your undivided attention.

**Q.4. What are greatest challenges to good communication.**

- people who think communication is about what you say, versus how you say it
- people who focus too much on being heard, instead of listening to others
- people who use the wrong channel to send a message, such as choosing to discuss a difficult situation with someone else through a weak channel such as text, email, or through someone else
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**Section – C**

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**Q.1. Explain the elements nonverbal communication.**

Nonverbal communication is mediated through the language of our body. Posture, eye contact, facial expressions are examples of nonverbal communication. Nonverbal communication is complex and is influenced by many factors. It is a powerful means of communication that has the capacity to reinforce what is said. Nonverbal communication is part and parcel of all communication and in some cases is far more powerful than the words used. A question to ask is; when I am with a patient how sensitive am I and how aware am I of my body language and how is this contributing or interfering with what I want the patient to hear?

**Nonverbal communication is mediated also through the following**

<b>Place</b>	Where the communication takes place, for example, a dialysis unit, waiting room, hospital corridor or clinic room
<b>People</b>	The people involved



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<b>Culture</b>	The culture of the participants, many dialysis units today are staffed by nurses who come from different countries, each with their own individual culture and language. Patients too come from different cultures and the mix of these two is going to heavily influence communication.
<b>Body Movements</b>	Nodding or shaking of the head, emphasising what is being said using hand gestures.
<b>Posture</b>	Crossing arms can indicate an unwillingness to ask or answer questions. Standing over someone can be seen to be overbearing. Sitting at the same level allow more 'equal conversation' and indicates you have time to talk and you may appear more relaxed and confident.
<b>Eye Contact</b>	Maintaining eye contact (without staring) conveys trust and engagement.
<b>Language</b>	Not only what is said but also the tone and pitch of the voice. Also the speed at which speech occurs.
<b>Closeness</b>	It is important to respect personal space and how close you sit may depend on what the communication is all about. Touch can be useful and reassuring or can be prohibiting so consider carefully the value of touching the patient when communicating with them.
<b>Facial Expressions</b>	Being aware of both yours and their facial expression is really important when you speak or listen to a patient.
<b>Reflective Positioning</b>	Two people in tune with each other will often reflect each other's body positions, turn towards each other, mimic arm positions. You can use this consciously, or you should at least be aware of whether this is happening or not with your patient.

### Q.2. Describe the process of communication.

#### Process of Communication

Communications is a continuous process which mainly involves three elements viz. sender, message, and receiver. The elements involved in the communication process are explained below in detail

#### 1. Sender

The sender or the communicator generates the message and conveys it to the receiver. He is the source and the one who starts the communication

#### 2. Message

It is the idea, information, view, fact, feeling, etc. that is generated by the sender and is then intended to be communicated further.

#### 3. Encoding

The message generated by the sender is encoded symbolically such as in the form of words, pictures, gestures, etc. before it is being conveyed.

#### 4. Media

It is the manner in which the encoded message is transmitted. The message may be transmitted orally or in writing. The medium of communication includes telephone, internet, post, fax, e-mail, etc. The choice of medium is decided by the sender.

#### 5. Decoding

It is the process of converting the symbols encoded by the sender. After decoding the message is received by the receiver.

#### 6. Receiver

He is the person who is last in the chain and for whom the message was sent by the sender. Once the receiver receives the message and understands it in proper perspective and acts according to the message, only then the purpose of communication is successful.

#### 7. Feedback



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Once the receiver confirms to the sender that he has received the message and understood it, the process of communication is complete.

## 8. Noise

It refers to any obstruction that is caused by the sender, message or receiver during the process of communication. For example, bad telephone connection, faulty encoding, faulty decoding, inattentive receiver, poor understanding of message due to prejudice or inappropriate gestures, etc.

### Q.3. Explain the effective communication techniques.

#### Effective Communication Technique

For any communication to be effective the nurse should be 'familiar with the patient's needs, pick up the cues from the patient, give the right information at the right kind of pace'. To achieve this, the following skills should be developed:

<b>Respecting the Person</b>	Always remember that patients feel vulnerable. acknowledging this goes a long way towards helping the patient deal healthily with their condition and treatment.
<b>Listening</b>	Patients should not be stereotyped or interrupted when they speak. if the patient is stereotyped, then the information is not tailored to the patient as a unique individual. if there are frequent interruptions, then the patient may feel they are not being listened to.
<b>Teaching new Information</b>	Giving information should always be given in terms the patient can understand. if medical terminology is used its meaning should always be explained to the patient. never assume that the patient understands the medical terminology used. a picture, or an analogy can prove very effective in helping the patient understand what is being communicated.
<b>Managing Expectations</b>	Patients will have many expectations about their diagnosis and treatment. it is important to recognise these and encourage the patient to talk about their expectations, some of which may be unreal, so that the patient is enabled to understand what is happening and why.
<b>Remain Focused</b>	What is the objective of the communication? it is to; provide information, clarify something not understood or modification of the patient's behaviour?
<b>Building Trust</b>	Establishing a relationship of trust will allow for clearer and more open lines of communication.

### Q.4. What do you mean emotional barriers? Describe the importance of communication.

#### Psychological Barriers

The **Psychological or Emotional Barriers** refers to the psychological state i.e. Opinions, attitudes, status consciousness, emotions, etc. of a person that deeply affects the ability to communicate. Communication largely depends on the mental condition of a person, if the person is not mentally or emotionally sound, then he cannot communicate effectively either as a sender or a receiver

#### Importance of Communication

##### The Basis of Co-ordination

The manager explains to the employees the organizational goals, modes of their achievement and also the interpersonal relationships amongst them. This provides coordination between various employees and also departments. Thus, communications act as a basis for coordination in the organization.

##### Fluent Working



## **BHARTIYA SKILL DEVELOPMENT UNIVERSITY**

A manager coordinates the human and physical elements of an organization to run it smoothly and efficiently. This coordination is not possible without proper communication.

### **The Basis of Decision Making**

Proper communication provides information to the manager that is useful for decision making. No decisions could be taken in the absence of information. Thus, communication is the basis for taking the right decisions.

### **Increases Managerial Efficiency**

The manager conveys the targets and issues instructions and allocates jobs to the subordinates. All of these aspects involve communication. Thus, communication is essential for the quick and effective performance of the managers and the entire organization.

### **Increases Cooperation and Organizational Peace**

The two-way communication process promotes co-operation and mutual understanding amongst the workers and also between them and the management. This leads to less friction and thus leads to industrial peace in the factory and efficient operations.

### **Boosts Morale of the Employees**

Good communication helps the workers to adjust to the physical and social aspect of work. It also improves good human relations in the industry. An efficient system of communication enables the management to motivate, influence and satisfy the subordinates which in turn boosts their morale and keeps them motivated.

*K. Kaur*



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1302**

**Time: 2 Hours**

**Course Name: Communicable Disease, Isolation measure and STD**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

**10X01 = 10 Marks**

**Q.1. Chicken pox is caused due to infection by:**

- |          |             |
|----------|-------------|
| a) Fungi | b) Bacteria |
| c) Virus | d) Protozoa |

**Q.2. Choose one correct classified bacteria:**

- |                        |                          |
|------------------------|--------------------------|
| a) Cocci- Spherical    | b) Bacill- Helical forms |
| c) Spirila- Rod shaped | d) Both a and b          |

**Q.3. Incubation period of chicken pox is:**

- |                 |                 |
|-----------------|-----------------|
| a) 10 - 14 days | b) 14 - 16 days |
| c) 14 - 18 days | d) 10 - 20 days |

**Q.4. A nurse is caring for a patient with 'swine flu' and she has to give the drug of choice for 'Swine flu' and it is:**

- |              |                |
|--------------|----------------|
| a) Acyclovir | b) Adefovir    |
| c) Cidofovir | d) Oseltamivir |

**Q.5. Tuberculosis is caused by polluted:**

- |         |            |
|---------|------------|
| a) Air  | b) Water   |
| c) Food | d) Fomites |

**Q.6. A disease caused by treponema pallidum is:**

- |               |             |
|---------------|-------------|
| a) Mums       | b) Syphilis |
| c) Gonorrhoea | d) Polio    |

**Q.7. Most important characteristics of diarrhea caused by vibrio cholera is:**

- |                             |                          |
|-----------------------------|--------------------------|
| a) Profound watery diarrhea | b) Severe abdominal pain |
| c) Massive bloody diarrhea  | d) Renal insufficiency   |

**Q.8. Influenza is caused by one of the following:**

- |                  |                 |
|------------------|-----------------|
| a) Vector borne  | b) Fomite borne |
| c) Vehicle borne | d) Air born     |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. The causative agent of cholera is:

- a) Clostridium tetani
- b) Salmonella typhi
- c) Clostridium welchi
- d) Vibrio cholera

Q.10. Which infection is known as trichomoniasis?

- a) Viral infection
- b) Bacterial infection
- c) Protozoal infection
- d) Fungal infection

### Section – B

04X04 = 16 Marks

- Q.1. Define virus. Write down the advantage of virus.
- Q.2. Describe the classification of bacteria.
- Q.3. How to prevention of TB.
- Q.4. What is the chlamydia. How is it spread of chlamydia?

### Section – C

04X06 = 24 Marks

- Q.1. Define syphilis. How can spread, test and complication syphilis?
- Q.2. Define influenza (Flu). Write down the four causes, symptom, complication, and prevention of influenza?
- Q.3. Write down the indication of isolation precautions.
- Q.4. Define gonorrhoea. Write down the four symptoms, causes, complication and how to spread of gonorrhoea.

K. Kaur



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**Section – A**

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- |          |             |
|----------|-------------|
| a) Fungi | b) Bacteria |
| c) Virus | d) Protozoa |
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- |         |            |
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- |              |             |
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- |                             |                          |
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- |                  |                 |
|------------------|-----------------|
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## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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- a) Clostridium tetani
- b) Salmonella typhi
- c) Clostridium welchi
- d) **Vibrio cholera**

Q.10. Which infection is known as trichomoniasis?

- a) Viral infection
- b) Bacterial infection
- c) **Protozoal infection**
- d) Fungal infection

### Section – B

04X04 = 16 Marks

Q.1. Define virus. Write down the advantage of virus.

#### Viruses

The word is from the Latin neuter *vīrus* referring to poison and other noxious liquids. An infective agent that typically consists of a nucleic acid molecule in a protein coat, is too small to be seen by light microscopy, and can multiply only within the living cells of a host. The study of viruses is known as virology.

#### Advantages of Virus

Viruses like the bacteriophages have an important function in marine ecology and carbon cycling. Viruses are important in the field of molecular and cell biology. Viruses provide simple system that can be used to manipulate and investigate the functions of cells. Viruses have provided valuable information about the aspects of cell biology. For example: viruses have been useful in the study in the genetics and molecular genetics like DNA replication, RNA processing, transcription, translation protein transport and immunology. Virotherapy is another use of virus where they are used as vectors to treat various diseases. They are used in the treatment of cancer and in gene therapy. As viruses can cause devastating epidemics they can be weaponised for biological warfare. Viruses are used in gene therapy, they are used to genetically manipulate somatic cells of individuals and they are used in production of transgenic plants and animals.

Q.2. Describe the classification of bacteria.

<b>Cocci</b>	Cocci (from kokkos meaning berry) are spherical, or nearly spherical.
<b>Bacilli</b>	Bacilli (from baculus meaning rod) are relatively straight, rod shaped (cylindrical) cells.
<b>Vibrios</b>	Vibrios are curved or comma-shaped rods and derive the name from their characteristic vibratory motility.
<b>Spirilla</b>	Spirilla are rigid spiral or helical forms.
<b>Spirochetes</b>	Spirochetes (from speira meaning coil and chaite meaning hair) are flexuous spiral forms.
<b>Mycoplasma</b>	Mycoplasma are cell wall deficient bacteria and hence do not possess a stable morphology. They occur as round or oval bodies and interlacing filaments.



## Q.3. How to prevention of TB.

### Prevent TB

TB is spread by tiny airborne droplets created by coughing. It is not spread by sharing food, utensils, drinks, touching, or having sex. Covering the mouth and nose when coughing is an important way to stop the spread of TB and other airborne diseases. If you have TB disease and are coughing, it is important to wear a mask and limit contact with others until your health care provider tells you that you are no longer contagious while on treatment. Preventing the Spread of TB, a highly effective TB vaccine is not available. Involve patients & community in advocacy campaigns. Infection control plan. Safe sputum collection. Cough etiquette and cough hygiene. Triage TB suspects to fast tract or separation. Rapid TB diagnosis and treatment. Improve room air ventilation. The BCG vaccine is widely used in countries with a high incidence of TB.

## Q.4. What is the chlamydia. How is it spread of chlamydia?

### Chlamydia

#### What is chlamydia

Chlamydia is a sexually transmitted infection (STI) caused by bacteria. The infection may occur in the rectum (the part of your intestine that ends at the anus), throat and urethra (the tube that carries urine from the bladder). In women, the infection may also occur in the opening to the uterus, also known as the cervix, and the fallopian tubes.

#### How is it spread?

Chlamydia is passed from one person to another by contact with body fluids containing the bacteria during unprotected oral, vaginal and anal sex. Sometimes a person with chlamydia will have no symptoms. Even without symptoms, the infection passes easily to another person. If you have a chlamydia infection you will be able to pass the infection on to others until you complete antibiotic treatment. If you are pregnant, you may pass the infection to you baby's eyes during childbirth. This may lead to blindness if the baby is not treated. If you have chlamydia during pregnancy, the baby may develop pneumonia. Chlamydia treatment does not protect you from getting it again. If you are treated and your sex partners are not, the bacteria could pass back to you again.

## Section – C

04X06 = 24 Marks

## Q.1. Define syphilis. How can spread, test and complication syphilis?

### Syphilis

#### What is syphilis?

Syphilis is a bacterial infection that is passed through the mucous membranes from a person who has an infection. The infection has 4 stages: primary, secondary, early latent and late latent.

#### How can I get syphilis?

You can get syphilis where there is skin-to-skin contact or exchange of bodily fluids with a person who has an infectious syphilis sore (lesion) or rash. This can happen through close contact or sexual contact with a person's mouth, genitals, or rectum when a syphilis sore or rash is present. Syphilis can also be transmitted to a baby from their mother during pregnancy or at birth. While both women and men can acquire syphilis, the clear majority of people diagnosed with syphilis in B.C. are men who identify as gay, bisexual, or men who have sex with men (MSM). Syphilis rates have increased greatly for MSM, mostly among 20 to 24-year-olds. If you have another sexually transmitted infection



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(STI) you have a greater risk of getting syphilis.

### How to get tested for syphilis

Visit your health care provider to get a referral for lab work where your blood and any sore(s) will be tested. It is recommended that MSM be tested for syphilis every 3 to 6 months, or immediately if you have symptoms, such as a sore or rash. Screening for syphilis is recommended as part of prenatal screening for pregnant women. If you are pregnant, discuss your risk factors for STIs with your health care provider throughout your pregnancy to determine the need for STI screening, including syphilis.

### What are the complications?

If you are not treated for syphilis, complications may occur early in the infection or several years later. Complications may be neurologic (such as hearing or vision loss, or dizziness) or damage to your brain, heart and other organs in your body, which can lead to death. Untreated syphilis in a pregnant woman can cause complications for her baby. Such as a miscarriage, premature birth or stillbirth, low birth weight, or cause the baby to be born with syphilis (called congenital syphilis).

### Q.2. Define influenza (Flu). Write down the four causes, symptom, complication, and prevention of influenza?

#### Influenza (Flu)

Influenza, commonly known as the "flu", is an acute infection of the respiratory tract caused by influenza viruses. There are three types of seasonal influenza viruses – A, B and C. Influenza A viruses are further categorized into subtypes. The 2009 pandemic influenza A(H1N1) virus (hereafter referred to as influenza A(H1N1)pdm09) which appeared for the first time in 2009 causing a global influenza pandemic, is now a seasonal influenza virus that co-circulates with other seasonal viruses (namely influenza A(H3N2) and influenza B viruses). Influenza viruses are genetically dynamic and evolve in unpredictable ways. Influenza viruses are further classified into strains based upon antigenic properties. Humoral immunity to influenza viruses is generally thought to be strain-specific and acquired through infection or vaccination. Seasonal influenza epidemics can be caused by new virus strains that are antigenically distinct from previously circulating virus strains to which a population has immunity; this is known as antigenic drift. Uncommonly, a completely new strain of influenza will emerge to which there is little or no existing immunity, this is known as antigenic shift and such novel strains can give rise to influenza pandemics such as 2009 pandemic influenza.

#### Clinical presentation and risk factors for influenza

Infection with influenza viruses can give rise to a wide range of clinical presentations, ranging from asymptomatic infection to severe illness and death depending on the characteristics of both the virus and the infected person. In the majority of people, influenza is an uncomplicated illness which is characterised by sudden onset of constitutional and respiratory symptoms such as fever, myalgia, cough, sore throat, rhinitis and headache. Uncomplicated influenza illness resolves after 3-7 days although cough and malaise can persist for >2 weeks. Influenza may be associated with more severe complications which include: influenza-associated pneumonia/ LRTI, secondary bacterial or viral infection (including pneumonia, sinusitis and otitis media), multi-organ failure, and exacerbations of underlying illnesses (e.g. pulmonary and cardiac illness). Rare complications include encephalopathy, myocarditis, transverse myelitis, pericarditis and Reye syndrome. For purposes of clinical management, influenza disease can be categorised as follows:

- Uncomplicated influenza: ILI (Influenza-like illness) may present with fever, cough, sore throat, coryza, headache, malaise, myalgia, arthralgia and sometimes gastrointestinal symptoms, but without any features of complicated influenza.



- Complicated/severe influenza: Influenza requiring hospital admission and/or with symptoms and signs of lower respiratory tract infection (hypoxaemia, dyspnoea, tachypnoea, lower chest wall indrawing and inability to feed), central nervous system involvement and/or a significant exacerbation of an underlying medical condition.

## **Prevention of influenza**

Influenza vaccination is the most effective method for prevention and control of influenza infection available currently. In general, influenza vaccines are most effective among children  $\geq 2$  years and healthy adults. A meta-analysis including data from years when there was a mismatch between vaccine and circulating strains estimated a pooled vaccine efficacy of 59% in healthy adults. Previous studies from South Africa have reported influenza VE estimates from 2005 to 2015 which ranged between 46% and 87% when there was a good match and ranged between -14% and 38% when the circulating A(H3N2) strain showed marked genetic drift [36, 37]. A randomised control trial conducted in South Africa has shown that when pregnant women receive the influenza vaccine, their risk of developing influenza is halved, as is the risk to their infants in the first 24 weeks of life [38]. The vaccine has been shown not only to be efficacious for prevention of influenza in both mothers and their infants but also safe. Trivalent influenza vaccine has been shown to provide protection in HIV-infected adults without severe immunosuppression. Data are unclear as to the effectiveness in HIV-infected children aged  $<5$  years. In certain groups, including the elderly, immunocompromised individuals and infants, influenza vaccine is less effective; however, it may reduce the incidence of severe disease, e.g. bronchopneumonia, hospital admission and mortality.



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**Q.3. Write down the indication of isolation precautions.**

Contact	Droplet	Airborne
<ul style="list-style-type: none"> <li>• Abscess, wound infection: major, draining</li> <li>• Bronchiolitis Burkholderia cepacia: patient with cystic fibrosis, infection or colonization</li> <li>• Conjunctivitis: acute viral</li> <li>• Gastro-enteritis: C. difficile, Rotavirus, diapered or incontinent persons for other infectious agents</li> <li>• Diphtheria: cutaneous</li> <li>• Hepatitis, type A and E virus: diapered or incontinent persons</li> <li>• Herpes simplex virus: mucocutaneous, disseminated or primary, severe, and neonatal</li> <li>• Human metapneumovirus</li> <li>• Impetigo</li> <li>• Lice (pediculosis)</li> <li>• Multidrug-resistant organisms: infection or colonization</li> <li>• Para-influenza virus</li> <li>• Poliomyelitis</li> <li>• Pressure ulcer: infected</li> <li>• Respiratory infectious disease: acute, infants and young children</li> <li>• Respiratory syncytial virus: in infants, young children and immunocompromised adults</li> <li>• Rubella: congenital</li> <li>• Scabies</li> <li>• Staphylococcal disease: furunculosis, scalded skin syndrome, burns</li> </ul>	<ul style="list-style-type: none"> <li>• Diphtheria: pharyngeal</li> <li>• Influenza virus: seasonal</li> <li>• Invasive disease: H. influenzae type b, N. meningitidis, Streptococcus group A</li> <li>• Mumps</li> <li>• Parvovirus B19: erythema infectiosum</li> <li>• Pertussis (whooping cough)</li> <li>• Plague: pneumonic</li> <li>• Pneumonia: Adenovirus, H. influenzae type b (infants and children), Mycoplasma</li> <li>• Rhinovirus</li> <li>• Rubella</li> <li>• Streptococcus group A disease: pharyngitis and scarlet fever (infants and young children)</li> <li>• Viral haemorrhagic fevers due to Lassa, Ebola, Marburg, Crimean-Congo fever viruses</li> </ul>	<ul style="list-style-type: none"> <li>• Influenza A: avian H7N9, Asian H5N1</li> <li>• Measles</li> <li>• MERS-Coronavirus: Middle East acute respiratory syndrome</li> <li>• Mycobacterium tuberculosis: laryngeal and pulmonary disease, extrapulmonary draining lesion</li> <li>• Smallpox</li> <li>• Varicella-zoster: disseminated disease, localized disease in immunocompromised patient</li> </ul>



**Q.4. Define gonorrhoea. Write down the four symptoms, causes, complication and how to spread of gonorrhoea.**

## **Gonorrhoea**

### **What is Gonorrhoea?**

Gonorrhoea is a sexually transmitted infection (STI) caused by bacteria. In women, the infection may occur in the opening of the uterus, also known as the cervix, and fallopian tubes. In both men and women, the infection may occur in the rectum (the part of your intestine that ends at the anus), throat and the urethra (the tube that carries urine from the bladder).

### **How is it spread?**

Gonorrhoea is passed from one person to another by contact with body fluids containing the bacteria during unprotected oral, vaginal and anal sex. Sometimes a person with gonorrhoea will have no symptoms. Even without symptoms, the infection passes easily to another person. A person with a gonorrhoea infection can pass the infection to others until they complete antibiotic treatment. Gonorrhoea can be passed to a baby's eyes during childbirth. This may lead to blindness if the baby is not treated. Gonorrhoea treatment does not protect you from getting it again. If you are treated and your sexual partner(s) are not, the bacteria will be able to pass back to you again.

### **What are the symptoms?**

Some people with gonorrhoea will have no symptoms and will not know that they have the infection. For men, symptoms can include:

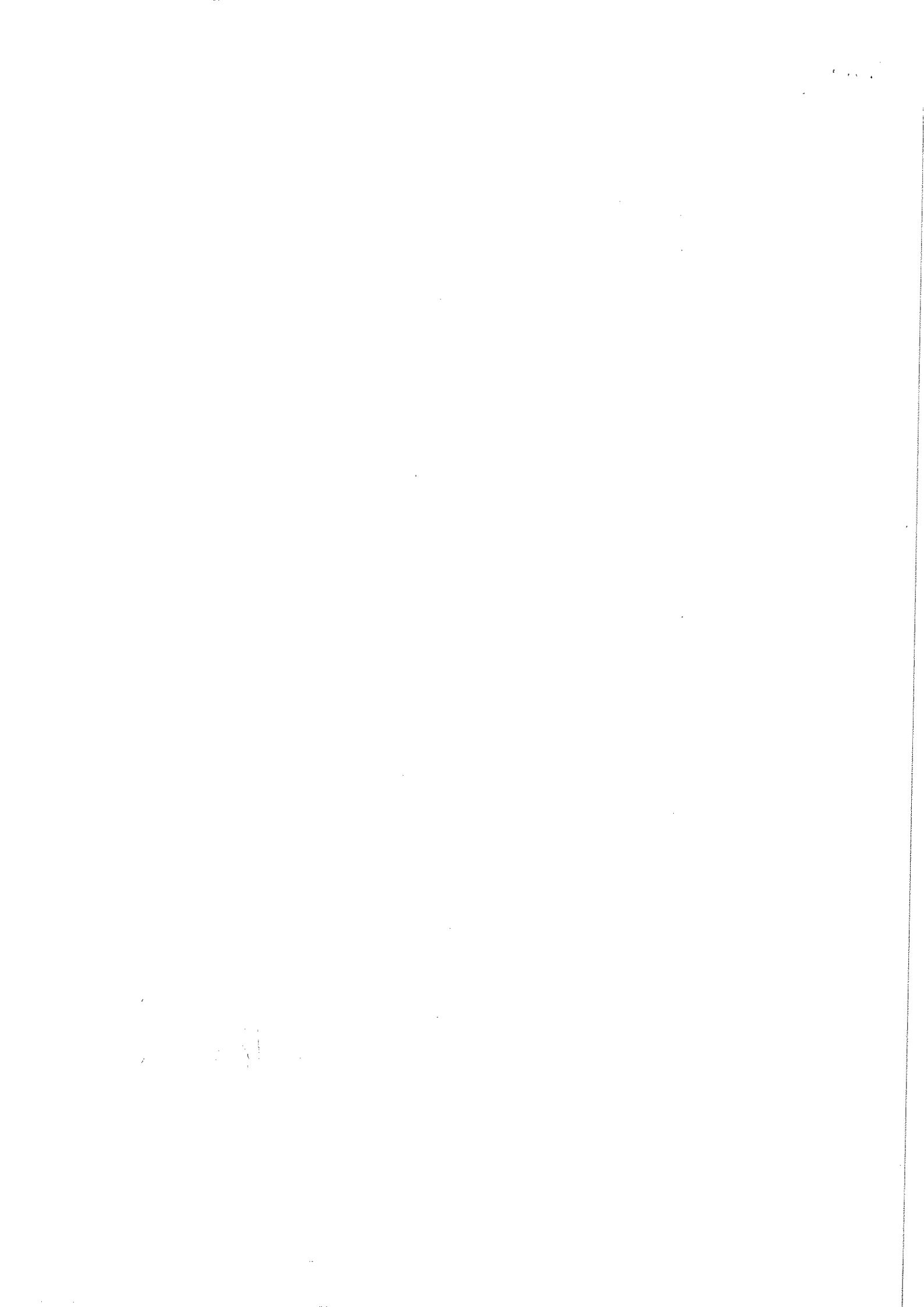
- Abnormal discharge from the penis
- Pain or a burning feeling when urinating
- Itching or irritation in the urethra – the tube that urine passes through

In women, the early symptoms are sometimes so mild that they are mistaken for a bladder infection or dismissed as a mild vaginal infection. For women, symptoms can include:

- Change in the amount and colour of fluid from the vagina
- Pain or a burning feeling while urinating
- Abnormal vaginal bleeding or spotting between periods or after sexual intercourse
- Pain in the lower abdomen  Pain during vaginal sex

### **What are the potential complications?**

If treated in time, gonorrhoea causes no lasting concerns. Untreated gonorrhoea can lead to complications as the infection spreads to other areas of the body. In women, complications may include difficulty getting pregnant, ectopic or tubal pregnancy or pelvic inflammatory disease (PID). In men, complications may include an infection in the testicles, which can lead to infertility. In both men and women, if left untreated, gonorrhoea may cause sexually-acquired reactive arthritis which includes skin, eye and joint problems. It is also associated with a higher chance of getting or passing HIV.





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**Section – A**

**10X01 = 10 Marks**

- Q.1. How are infectious disease, such as colds and influenza, most commonly spreads by?**
- a) Breathing virus in air
  - b) Hand to face contact
  - c) Drinking infected water
  - d) Eating contaminated food
- Q.2. Choose one correct classified bacteria:**
- a) Cocci- Spherical
  - b) Bacill- Helical forms
  - c) Spirilla- Rod shaped
  - d) Both a and b
- Q.3. Cholera is caused by:**
- a) Vibrio choli
  - b) Vibrio cholerae
  - c) Vibrio cholesterol
  - d) Vector cholerae
- Q.4. A nurse is caring for a patient with 'swine flu' and she has to give the drug of choice for 'swine flu' and it is:**
- a) Acyclovir
  - b) Adefovir
  - c) Cidofovir
  - d) Oseltamivir
- Q.5. Mantoux test is done to detect:**
- a) Tuberculosis
  - b) Diphtheria
  - c) Typhoid
  - d) Tetanus
- Q.6. Which of the following is a non-communicable disease?**
- a) Diabetes mellitus
  - b) Tuberculosis
  - c) Typhoid
  - d) Small pox
- Q.7. "Rice water stool" is a typical finding in case of:**
- a) Cholera
  - b) Typhoid
  - c) Ulcerative colitis
  - d) Amoebiasis
- Q.8. In following which is not a sexually transmitted disease:**
- a) Chancroid
  - b) Syphilis
  - c) Fibroid uterus
  - d) AIDS



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Q.9. Full form of HSV:

- a) Herpes simple virus
- b) Herpes simplex virus
- c) Herpes simplex vector
- d) Hurpus simplex virus

Q.10. The correct order to remove PPE:

- a) Apron-Gloves-Mask-goggle
- b) Goggles-Mask-Apron-Gloves
- c) Gloves-Apron-Mask-Eye-goggles
- d) It doesn't matter in what order they are removed

### Section – B

04X04 = 16 Marks

- Q.1. Define virus. Write down the properties of virus.
- Q.2. Describe the stage of diphtheria,
- Q.3. Draw the chart of chain of infection. Write down the two difference the droplets and airborne precaution.
- Q.4. What is the chlamydia. How is it spread of chlamydia?

### Section – C

04X06 = 24 Marks

- Q.1. Define syphilis. How can spread, test and complication syphilis?
- Q.2. Define trichomoniasis. Write down the four symptom, complication and How is it spread?
- Q.3. What do you mean by poliomyelitis? Difference between the OPV and IPV.
- Q.4. Define chicken pox. Write down the four symptom, causes and complication of chicken pox.

*K. K. K.*





## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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### Section – B

04X04 = 16 Marks

Q.1. Define virus. Write down the properties of virus.

#### Viruses

The word is from the Latin neuter *vīrus* referring to poison and other noxious liquids. An infective agent that typically consists of a nucleic acid molecule in a protein coat, is too small to be seen by light microscopy, and can multiply only within the living cells of a host. The study of viruses is known as virology.

#### Properties of viruses

- Viruses are not cells, do not have nuclei or mitochondria or ribosomes or other cellular components.
- Viruses replicate or multiply. Viruses do not grow.

Viruses replicate or multiply only within living cells

Q.2. Describe the stage of diphtheria,

#### Catarrhal stage.

In the early catarrhal stage, pertussis is highly contagious, with a secondary attack rate of up to 90% among non-immune household contacts. Untreated patients may transmit the infection for three weeks or more following the onset of typical coughing attacks, although communicability diminishes rapidly after the catarrhal stage.

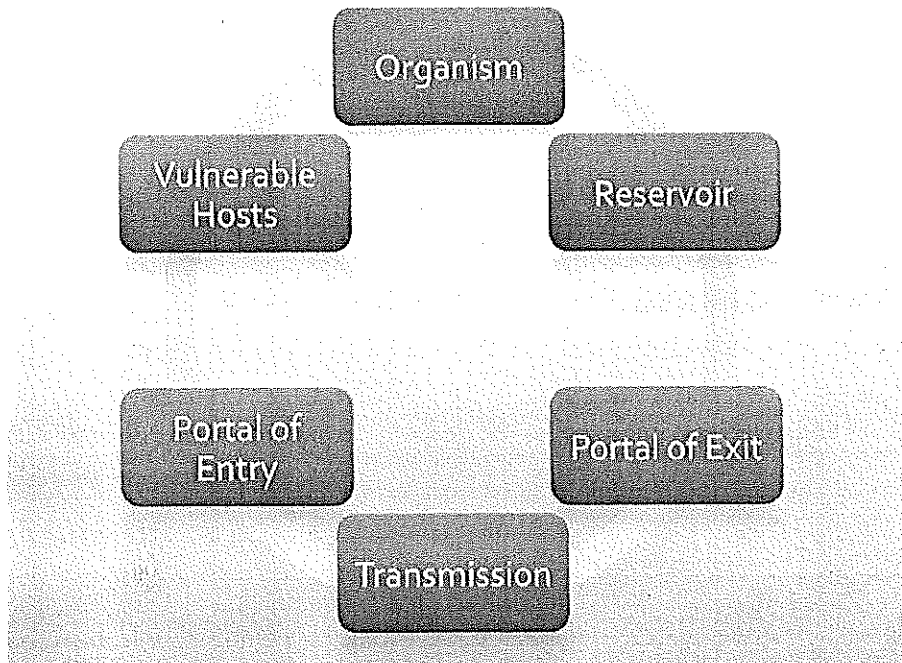
#### Paroxysmal stage.

The paroxysmal stage is marked by more frequent and spasmodic coughing, and it is during this stage when the classic whoop can be heard (but not always present).

#### Convalescent stage.

The convalescent stage is marked by less frequent and less severe coughing.

**Q.3. Draw the chart of chain of infection. Write down the two difference the droplets and airborne precaution.**



#### **Droplet Precautions**

Droplet precautions are applied for patients infected with pathogens that spread by respiratory droplets larger than 5  $\mu\text{m}$ , produced during coughing, sneezing, talking, or during invasive procedures, such as bronchoscopy and intubation. Provide a private room or maintain spatial separation of at least 1 m between the infected patient and other patients and visitors. Patients with excessive cough and sputum production should receive a single room first. Special ventilation is unnecessary and the door may remain open. Masks are worn within 1 meter (3 feet) of the patient. Limit transport of patients to medically necessary purposes, and maintain isolation precautions during transport. When possible, limit the use of patient-care equipment to a single patient. [SEP]

#### **Airborne Precautions**

Airborne precautions are applied for patients infected with pathogens spread by respiratory droplets 5  $\mu\text{m}$  and smaller, produced during coughing, sneezing, talking, or during invasive procedures, such as bronchoscopy. Therefore, susceptible healthcare personnel are restricted from entering the rooms of patients known or suspected to have measles, varicella, disseminated zoster, or smallpox. As for the other infections requiring airborne precautions, patients with suspected or known infection by *Mycobacterium tuberculosis* should be nursed in a private room where the air flows in the direction from the hall into the room (negative air pressure), with 6 to 12 (optimal) air changes per hour, and appropriate discharge of air outdoors. [SEP]

High-efficiency filtration is necessary if the air is circulated in other areas of the hospital. Keep the door closed. Cohorting can be done in rare circumstances for patients infected with strains presenting with an identical antimicrobial susceptibility. Respiratory protection must be worn both by HCPs and visitors when entering the room. The technical requirements for respiratory protection devices remain controversial: CDC guidelines advocate masks with face-seal leakage of 10% or less and filter 1  $\mu\text{m}$



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particles for 95% efficiency or higher. However, a moulded surgical mask may be as effective in dealing with healthcare associated outbreaks and better complied with because of cost. Patient transport through other areas of the facility should be avoided. However, if transport is unavoidable, the patient should wear a surgical mask that covers both mouth and nose.

### Q.4. What is the chlamydia. How is it spread of chlamydia?

What is chlamydia

Chlamydia is a sexually transmitted infection (STI) caused by bacteria. The infection may occur in the rectum (the part of your intestine that ends at the anus), throat and urethra (the tube that carries urine from the bladder). In women, the infection may also occur in the opening to the uterus, also known as the cervix, and the fallopian tubes.

How is it spread?

Chlamydia is passed from one person to another by contact with body fluids containing the bacteria during unprotected oral, vaginal and anal sex. Sometimes a person with chlamydia will have no symptoms. Even without symptoms, the infection passes easily to another person. If you have a chlamydia infection you will be able to pass the infection on to others until you complete antibiotic treatment. If you are pregnant, you may pass the infection to your baby's eyes during childbirth. This may lead to blindness if the baby is not treated. If you have chlamydia during pregnancy, the baby may develop pneumonia. Chlamydia treatment does not protect you from getting it again. If you are treated and your sex partners are not, the bacteria could pass back to you again.

## Section – C

04X06 = 24 Marks

### Q.1. Define syphilis. How can spread, test and complication syphilis?

Syphilis

What is syphilis?

Syphilis is a bacterial infection that is passed through the mucous membranes from a person who has an infection. The infection has 4 stages: primary, secondary, early latent and late latent.

How can I get syphilis?

You can get syphilis where there is skin-to-skin contact or exchange of bodily fluids with a person who has an infectious syphilis sore (lesion) or rash. This can happen through close contact or sexual contact with a person's mouth, genitals, or rectum when a syphilis sore or rash is present. Syphilis can also be transmitted to a baby from their mother during pregnancy or at birth. While both women and men can acquire syphilis, the clear majority of people diagnosed with syphilis in B.C. are men who identify as gay, bisexual, or men who have sex with men (MSM). Syphilis rates have increased greatly for MSM, mostly among 20 to 24-year-olds. If you have another sexually transmitted infection (STI) you have a greater risk of getting syphilis.

How to get tested for syphilis

Visit your health care provider to get a referral for lab work where your blood and any sore(s) will be tested. It is recommended that MSM be tested for syphilis every 3 to 6 months, or immediately if you have symptoms, such as a sore or rash. Screening for syphilis is recommended as part of prenatal screening for pregnant women. If you are pregnant, discuss your risk factors for STIs with your health care provider throughout your pregnancy to determine the need for STI screening, including syphilis.



What are the complications?

If you are not treated for syphilis, complications may occur early in the infection or several years later. Complications may be neurologic (such as hearing or vision loss, or dizziness) or damage to your brain, heart and other organs in your body, which can lead to death. Untreated syphilis in a pregnant woman can cause complications for her baby. Such as a miscarriage, premature birth or stillbirth, low birth weight, or cause the baby to be born with syphilis (called congenital syphilis).

**Q.2. Define trichomoniasis. Write down the four symptom, complication and How is it spread?**

Trichomoniasis is a sexually transmitted infection (STI) caused by a parasite called *Trichomonas vaginalis*. It is commonly called 'trich' (sounds like "trick"). The infection may occur in the vagina or in the urethra (the tube that carries urine from the bladder). To find out if you have trichomoniasis, you need to see a health care provider and have lab tests done. Currently, lab tests can only find trichomoniasis in women; testing for men is not routinely available or recommended.

1.1 How is it spread?

Trichomoniasis is spread by having vaginal sex with a person who is infected with the parasite.

1.2 What are the symptoms?

It is possible to have trichomoniasis and not have any symptoms.

For women symptoms can include:

- Change in amount and/or colour (often whitish- yellow, frothy) fluid from the vagina [1]
- Itching, burning, redness and/or soreness of the genitals [1]
- Pain or a burning feeling when urinating or during sex [1]

For men symptoms can include: [1]

- Unusual fluid from the penis [1]
- Pain or burning feeling when urinating [1]
- Itching or irritation in the urethra – the tube that passes urine [1]

1.3 What are the potential complications?

If treated in time, trichomoniasis causes no lasting concerns. In men, it may be linked with infertility or [1]

Trichomoniasis lower sperm count. If you are pregnant and have trichomoniasis, your baby may be born early (premature) and/or with a low birth weight. It is also associated with a higher chance of getting and passing HIV, other STIs and an increased risk for pelvic inflammatory disease (PID).

**Q.3. What do you mean by poliomyelitis? Difference between the OPV and IPV.**

1.4 Poliomyelitis

Poliomyelitis (polio) is a highly infectious disease that is caused when a person is infected by the polio virus that invades the nervous system. Poliomyelitis can cause paralysis and even death. There are 3 types of the polio virus – type 1, type 2, and type 3. The polio virus usually affects children under 5 years of age who are not fully vaccinated. It can also affect adolescents and adults. The polio virus



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enters the body through the mouth when one eats food or drinks water that is contaminated with faecal matter from a person who carries the polio virus. The virus multiplies in the intestines and is passed through faeces. The symptoms of polio are fever, fatigue, headache, vomiting, stiffness in the neck, pain in the limbs, and weakness in the limbs. If a child under 15 years of age suddenly shows signs of a floppy or weak arm or leg, then health authorities should be informed immediately. There is no cure for polio.

### OPV and IPV

There are two vaccines for polio: the Oral Polio Vaccine (OPV) and the Inactivated Polio Vaccine (IPV). OPV is taken orally as drops and can be easily administered. It does not require a trained health worker. OPV is still the main preventive measure against polio. Trivalent OPV (tOPV) and IPV protect against all three types of polio viruses (types 1, 2 and 3). Bivalent OPV (bOPV) targets type 1 and type 3, but not type 2. IPV is given through an injection by a trained health worker. In countries still using OPV, IPV does not replace the OPV vaccine, but is used with OPV to strengthen a child's immune system and protect them from polio. Each country has its own immunization schedules. Countries might have OPV or IPV alone or a combined schedule. By 2016, all countries will have introduced at least one dose of IPV.

Oral Polio Vaccine (OPV)	Inactivated Polio Vaccine (IPV)
Taken orally as drops	Given through injection
Easily administered and does not require a trained health worker	Requires a trained health worker
Main preventive measure against polio	In countries still using OPV, it is given in addition to OPV
	Strengthens the immune system and provides further protection from polio

**Q.4. Define chicken pox. Write down the four symptom, causes and complication of chicken pox.**

### 1.5 Chicken Pox

The varicella-zoster virus (VZV) causes two distinct clinical infectious diseases, chickenpox (varicella) and shingles (zoster). Chickenpox is the primary infection caused by the varicella-zoster virus. It is an acute, highly infectious disease most commonly seen in children under 10 years old. Chickenpox is usually a mild, self-limiting illness and most healthy children recover with no complications. Adults tend to suffer more severe disease than children. In Ireland, the incidence of Chickenpox is seasonal reaching a peak from January to April when outbreaks of infection are common. Anyone who has had chickenpox in the past may develop shingles. You can only get shingles if you have previously had chickenpox as it is a recurrence or reactivation of the varicella zoster virus. It is not possible to develop shingles from exposure to a person with chickenpox. It is possible however, to develop chickenpox as a result of exposure to a person with shingles. Second attacks of chickenpox are rare but do occur.

### Signs and Symptoms

Chickenpox may initially begin with cold-like symptoms, as the virus is shed from the naso-pharynx for up to 5 days before the rash appears. This may be accompanied by fever, mild headache and myalgia. An intensely itchy, vesicular (fluid-filled blister-like) rash appears - these crops of vesicular spots appear, mostly over the trunk and to a lesser extent the limbs. The severity of infection varies and it is possible to be infected but show no symptoms. Infectivity may be prolonged in people with altered immunity.

### Complications

The risk of complications varies with age and is higher in infants under 1 and in persons over 15 years. Nearly all children recover completely and have detectable antibodies for many years. Complications in childhood are uncommon but may occur and include neurological complications (meningitis,

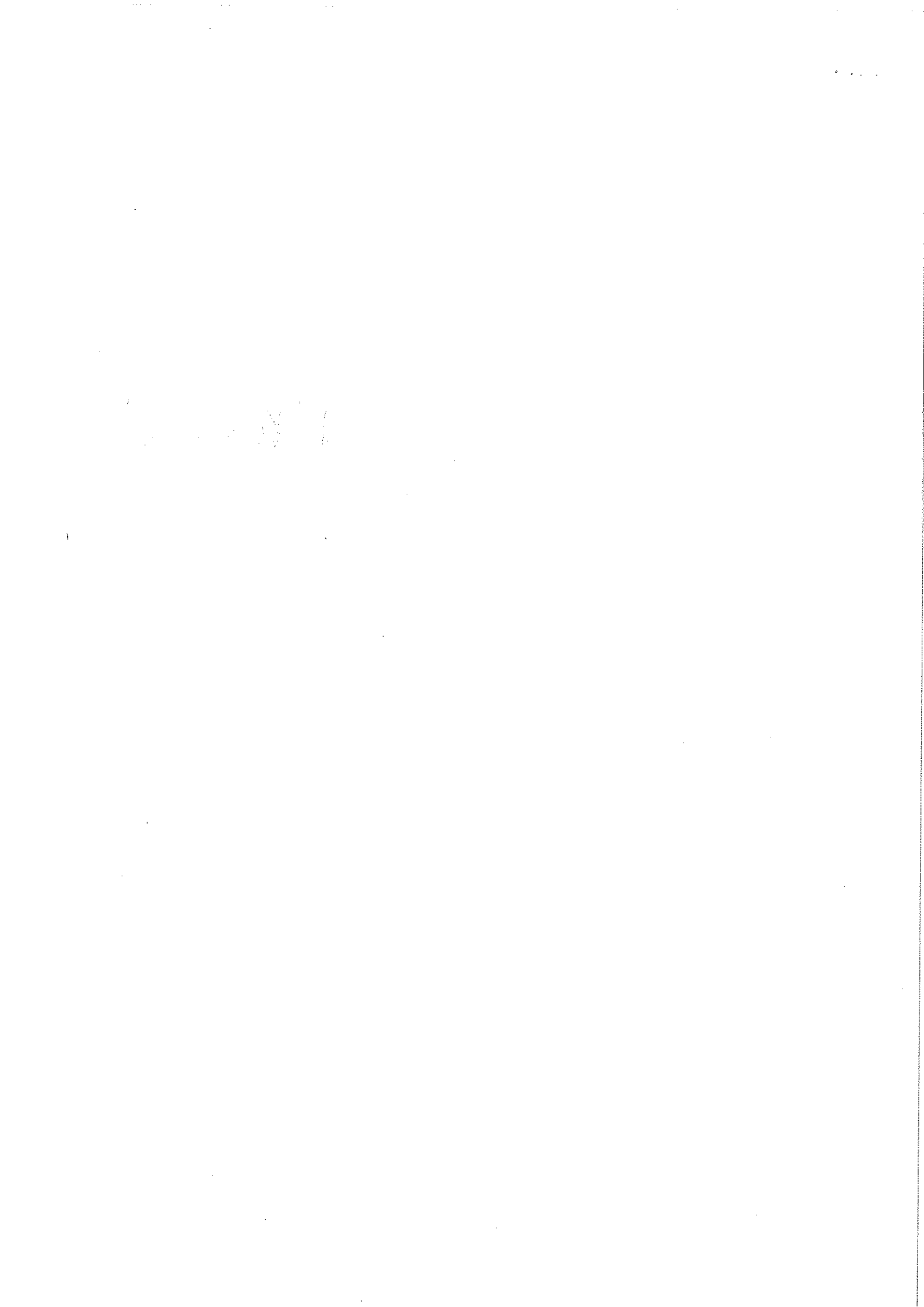


## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

encephalitis) and more rare glomerulonephritis and myocarditis. In children under 5, skin bacterial super infection is the most common complication. This manifests as a sudden high grade temperature (often after initial improvement), erythema and tenderness surrounding the original chickenpox lesions. Adults with chickenpox may develop more severe disease with lung involvement of varying severity, with smokers at higher risk of fulminating varicella pneumonia. Maternal infection in pregnancy carries a greater risk of severe varicella pneumonia in the mother, especially late in the second trimester and early in the third trimester. Risks to the foetus and neonate are related to the time of infection in the mother.

Varicella infection in the first 20 weeks of pregnancy can cause a variety of abnormalities in the foetus; low birth weight, underdevelopment of a limb(s), skin scarring, poor development of localised muscles or brain abnormality. The mortality rate ranges from 1-2%. Varicella infection around the time of delivery from 5 days before to 2 days after delivery may result in overwhelming infection in the infant and a fatality rate as high as 30%. This severe disease is believed to result from fetal exposure to varicella virus without the benefit of passive maternal antibody.

K. K. K.





**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1303**

**Time: 2 Hours**

**Course Name: Blood Collection / Drug Administration / Observation**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. Route of administration by which drug reaches the joints directly:**

- |                    |                   |
|--------------------|-------------------|
| a) Intra articular | b) Intravenous    |
| c) Intrathecal     | d) Intra arterial |

**Q.2. Intradermal injection is given at:**

- |        |        |
|--------|--------|
| a) 45° | b) 15° |
| c) 40° | d) 90° |

**Q.3. When a drug is administration through the layers of the skin into areolar tissue, this is known as:**

- |                                |                                  |
|--------------------------------|----------------------------------|
| a) Intradermal administration  | b) Intra-arterial administration |
| c) Subcutaneous administration | d) Intramuscular administration  |

**Q.4. Which size of the blue color cannula?**

- |             |             |
|-------------|-------------|
| a) 14 gauge | b) 18 gauge |
| c) 20 gauge | d) 22 gauge |

**Q.5. A PT - INR test would require which colour vacutainer tube?**

- |         |          |
|---------|----------|
| a) Blue | b) Red   |
| c) Sky  | d) Green |

**Q.6. Which of the following drug forms can be administration through a nasogastric tube?**

- |                   |               |
|-------------------|---------------|
| a) Enteric coated | b) Oral       |
| c) Parenteral     | d) Sublingual |

**Q.7. Patient is laid down in which position, before intramuscular injection is administered:**

- |                        |           |
|------------------------|-----------|
| a) Laying down patient | b) Dorsal |
| c) Sim's position      | d) Prone  |

**Q.8. Injection cannot be given by which route:**

- |                  |                |
|------------------|----------------|
| a) Intra osseous | b) Intradermal |
| c) Intra rectal  | d) Intravenous |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Glucose vial is known as:

- a) Fluoride vial
- b) Fluoridate vial
- c) Fluoridicity vial
- d) EDTA vial

Q.10. Intramuscular injection can be injected in all the following muscle except:

- a) Triceps
- b) Deltoid
- c) Vastus lateralis
- d) Gluteal

### Section – B

04X04 = 16 Marks

- Q.1. Describe Bronchi and oral cavity local routes.
- Q.2. Write the two advantage and disadvantage of subcutaneous route.
- Q.3. What do you mean by intra thecal route?
- Q.4. Draw the diagram of part of syringe with help of label.

### Section – C

04X06 = 24 Marks

- Q.1. Explain the blood collection container.
- Q.2. Difference between the sublingual, oral and transdermal route.
- Q.3. What is blood collection technique? Write in detail about health and safety measure to be taken while collecting blood along with the equipment needed.
- Q.4. Describe eight rights of medication administration.



**School of Health Care and Paramedics Skills**

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**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1303**

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**Section – A**

10X01 = 10 Marks

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- |                           |                   |
|---------------------------|-------------------|
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- |        |               |
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- |               |          |
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- |                        |                |
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# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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- a) Triceps
- b) Deltoid
- c) Vastus lateralis
- d) Gluteal

## Section – B

04X04 = 16 Marks

Q.1. Describe Bronchi and oral cavity local routes.

### Bronchi

As inhalation, e.g. salbutamol, ipratropium bromide, etc. (for bronchial asthma and chronic obstructive pulmonary disease).

### Oral cavity

As a suspension, e.g. nystatin; as a troche, e.g. clotrimazole (for oral candidiasis); as a cream, e.g. acyclovir (for herpes labialis); as ointment and jelly, e.g. 5% lignocaine hydrochloride (for topical anaesthesia); as a spray, e.g. 10% lignocaine hydrochloride (for topical anaesthesia).

Q.2. Write the two advantage and disadvantage of subcutaneous route.

### Subcutaneous (s.c.) route

The drug is injected into the subcutaneous tissues of the thigh, abdomen and arm, e.g. adrenaline, insulin, etc.

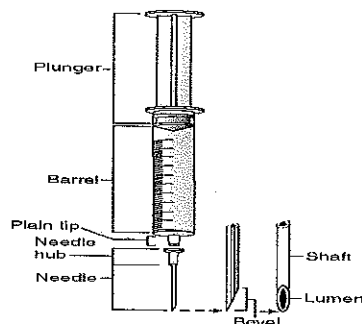
Advantages	Disadvantages
Self-administration is possible (e.g. insulin)	It is suitable only for non-irritant drugs
Depot preparations can be inserted into the subcutaneous tissue, e.g. nor plant for contraception	Drug absorption is slow; hence it is not suitable for emergency

Q.3. What do you mean by intra thecal route?

### Intrathecal Route

Intrathecal administration is a route of administration for drugs via an injection into the spinal canal, or into the subarachnoid space so that it reaches the cerebrospinal fluid (CSF) and is useful in spinal anaesthesia, chemotherapy, or pain management applications.

Q.4. Draw the diagram of part of syringe with help of label.









Q.1. Explain the blood collection container.

**Blood Container**

A Vacutainer blood collection tube is a sterile glass or plastic test tube with a colored rubber stopper creating a vacuum seal inside of the tube, facilitating the drawing of a predetermined volume of liquid. Vacutainer tubes may contain additives designed to stabilize and preserve the specimen prior to analytical testing. Tubes are available with a safety-engineered stopper, with a variety of labeling options and draw volumes. The color of the top indicates the additives in the vial.

	<p><b>Red Vial (Plain vial)</b></p> <p>It is Plastic Serum Tubes have spray-coated silica and are used for serum determinations in chemistry, serology, and immunohematology. Does not contain any anticoagulant.</p>
	<p><b>EDTA Vial (Ethylenediaminetetraacetic Acid)</b></p> <p>It is spray-coated K2EDTA Tubes are used for whole blood hematology determinations and immunohematology testing.</p>
	<p><b>Heparin Vial</b></p> <p>Heparin Tubes are spray-coated with either lithium heparin or sodium heparin and are used for plasma determinations in chemistry.</p>
	<p><b>Glucose Vial</b></p> <p>Fluoride Tubes contain a glycolytic inhibitor and are used for glucose determinations on plasma.</p>



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

### Q.2. Difference between the sublingual, oral and transdermal route.

#### Oral Route

It is the most common and acceptable route for drug administration. Dosage forms are tablet, capsule, syrup, mixture, etc., e.g., paracetamol tablet for fever, omeprazole capsule for peptic ulcer are given orally.

Advantages	Disadvantages
Safer	Not suitable for emergency as onset of action of orally administered drugs is slow.
Cheaper	Uncooperative and unreliable patients.
Painless	Patients with severe vomiting and diarrhoea.
Convenient for repeated and prolonged use	It is not suitable for/in: <ul style="list-style-type: none"> <li>• Unpalatable and highly irritant drugs.</li> <li>• Unabsorbable drugs (e.g. aminoglycosides).</li> <li>• Drugs that are destroyed by digestive juices (e.g. insulin).</li> <li>• Drugs with extensive first-pass metabolism (e.g. lignocaine).</li> <li>• Unconscious patients</li> </ul>
Can be self-administrated	

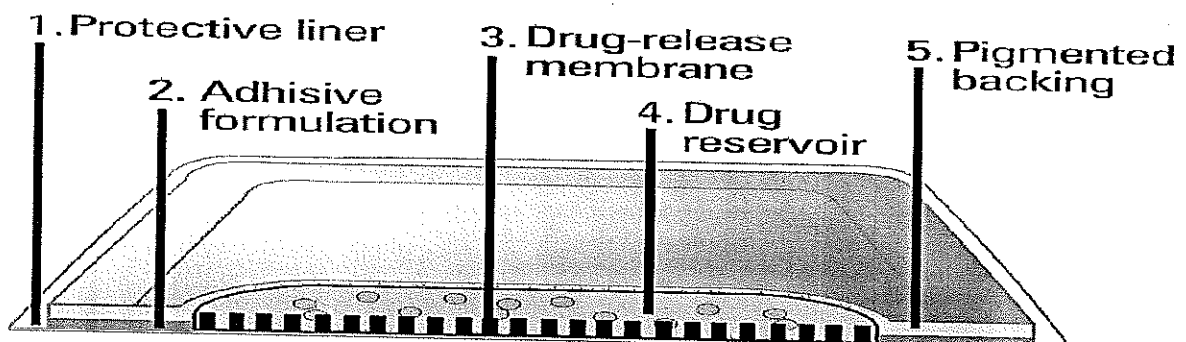
#### Sublingual Route

The preparation is kept under the tongue. The drug is absorbed through the buccal mucous membrane and enters the systemic circulation directly, e.g. nitroglycerin for acute anginal attack and buprenorphine for my-ocardial infarction.

Advantages	Disadvantages
Quick onset of action.	Irritant and lipid-insoluble drugs
Action can be terminated by spitting out the tablet	Drugs with bad smell and taste
Bypass first-pass metabolism	
Self-administration is possible	

#### Transdermal Route

A transdermal patch is a medicated adhesive patch that is placed on the skin to deliver a specific dose of medication through the skin and into the bloodstream. Often, this promotes healing to an injured area of the body. For example, scopolamine patch for sialorrhoea and motion sickness, nitroglycerin patch/ointment for angina, oestrogen patch for hormone replacement therapy (HRT).





Advantages	Disadvantages
Self-administration is possible	Expensive
Patient compliance is better	Local irritation may cause dermatitis & itching
Duration of action is prolonged	
Systemic side effects are reduced	
Provides a constant plasma concentration of the drug	

**Q.3. What is blood collection technique? Write in detail about health and safety measure to be taken while collecting blood along with the equipment needed.**

### **Blood Collection Techniques**

Blood specimen collection is performed routinely to obtain blood for laboratory testing. Blood can be obtained from venous access devices and sometimes by fingerstick. Blood is most frequently obtained via a peripheral vein puncture (venipuncture).

### **Health & Safety**

The following health and safety measures are adhered to by staff in all cases:

- Personal protective equipment (PPE); i.e. gloves, close shoes, mask, gown, etc.
- Hand hygiene practices
- Follow the corporate waste management practices. All contaminated items such as gloves, tourniquets discard on clinical waste
- Maintaining clean work environment by daily disinfectant of work surfaces
- Adheres to use safety needles. Recapping a used needle is not recommended
- Any member of staff handling blood samples are advised to be vaccinated against Hepatitis B
- Safety glasses may be worn while handling samples
- Avoid accidentally pricking yourself when handling sharp instruments that have been in contact with blood

### **Preparation of Sample Collection Equipment's**

- A syringe with needle (gauge 21 or 23), one per patient
- A vacuum tube containing an anticoagulant such as EDTA, 4–5-mL capacity, one per patient;
- 70% ethyl alcohol or alcohol swabs
- Dry cotton (cotton ball, swab or gauze)
- Protective latex gloves (powder-free)
- A tourniquet
- A biohazard container or any puncture-resistance sharps container
- An infectious wastes container
- A smear preparation template
- A drying rack
- Record forms (i.e. malaria register) and
- A lead pencil or permanent marker pen.



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.4. Describe eight rights of medication administration.

### Eight Rights of Medication Administration

1. Right Patient	<ul style="list-style-type: none"><li>• Check the name on the order and the patient</li><li>• Use 2 identifiers</li><li>• Ask patient to identify himself/herself</li><li>• When available, use technology (for example, bar-code system)</li></ul>
2. Right medication	<ul style="list-style-type: none"><li>• Check the medication label</li><li>• Check the order</li></ul>
3. Right dose	<ul style="list-style-type: none"><li>• Check the order</li><li>• Confirm appropriateness of the dose using a current drug reference</li><li>• If necessary, calculate the dose and have another nurse calculate the dose as well</li></ul>
4. Right route	<ul style="list-style-type: none"><li>• Again, check the order and appropriateness of the route ordered.</li><li>• Confirm that the patient can take or receive the medication by the ordered route.</li></ul>
5. Right time	<ul style="list-style-type: none"><li>• Check the frequency of the ordered medication</li><li>• Double-check that you are giving the ordered dose at the correct time</li><li>• Confirm when the last dose was given</li></ul>
6. Right documentation	<ul style="list-style-type: none"><li>• Document administration AFTER giving the ordered medication.</li><li>• Chart the time, route, and any other specific information as necessary. For example, the site of an injection or any laboratory value or vital sign that needed to be checked before giving the drug.</li></ul>
7. Right reason	<ul style="list-style-type: none"><li>• Confirm the rationale for the ordered medication. What is the patient's history? Why is he/she taking this medication?</li><li>• Revisit the reasons for long-term medication use.</li></ul>
8. Right response	<ul style="list-style-type: none"><li>• Make sure that the drug led to the desired effect. If an antihypertensive was given, has his/her blood pressure improved? Does the patient verbalize improvement in depression while on an antidepressant?</li><li>• Be sure to document your monitoring of the patient and any other nursing interventions that are applicable.</li></ul>

*K. Kaur*



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,  
End-Sem. Examination**

**Course Code: SHP1303**

**Time: 2 Hours**

**Course Name: Blood Collection / Drug Administration / Observation**

**Max. Marks: 50**

**Instruction:**

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**Section – A**

10X01 = 10 Marks

**Q.1. Intra osseous injection is given in:**

- |                  |                |
|------------------|----------------|
| a) Vein          | b) Bone marrow |
| c) Spinal cavity | d) Muscles     |

**Q.2. In subcutaneous injection, the skin is pinched between thumb and forefinger of left hand and needle inserted at:**

- |        |          |
|--------|----------|
| a) 45° | b) 5-10° |
| c) 40° | d) 90°   |

**Q.3. Which of the following is the preferred site for intramuscular injection in adults?**

- |            |                     |
|------------|---------------------|
| a) Deltoid | b) Rectus femoris   |
| c) Gluteal | d) Vastus lateralis |

**Q.4. Which size of the green color cannula?**

- |             |             |
|-------------|-------------|
| a) 14 gauge | b) 18 gauge |
| c) 20 gauge | d) 22 gauge |

**Q.5. A complete blood count test would require which colour vacutainer tube?**

- |          |          |
|----------|----------|
| a) Blue  | b) Red   |
| c) Black | d) Green |

**Q.6. The intravenous site can be scrubbed with one of the following antiseptics prior to venipuncture:**

- |                       |               |
|-----------------------|---------------|
| a) Povidon- Iodine 7% | b) Sterillium |
| c) 70% alcohol        | d) 5% Savlon  |

**Q.7. Patient is laid down in which position, before intramuscular injection is administered:**

- |                        |           |
|------------------------|-----------|
| a) Laying down patient | b) Dorsal |
| c) Sim's position      | d) Prone  |

**Q.8. Eye drops are classified into which class of drug:**

- |                       |                      |
|-----------------------|----------------------|
| a) Infusion           | b) Inhalation        |
| c) Topical medication | d) Parental medicine |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Glucose vial is known as:

- a) Fluoride vial
- b) Fluoridate vial
- c) Fluoridicity vial
- d) EDTA vial

Q.10. When giving a patient IM injection preoperative medication, the practical nurse must remember to inject into site no more than?

- a) 1 MI
- b) 2 MI
- c) 3 MI
- d) 4 MI

### Section – B

04X04 = 16 Marks

- Q.1. Describe rectal route.
- Q.2. Write the four advantage of capillary blood collection.
- Q.3. What do you mean by intra-articular route?
- Q.4. What can happen needle stick injury

### Section – C

04X06 = 24 Marks

- Q.1. Explain the blood collection container.
- Q.2. Difference between the intramuscular and transdermal route.
- Q.3. Define blood collection. How to preparation and handling of blood sample.
- Q.4. Describe local route.

K. K. K.



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1303**

**Time: 2 Hours**

**Course Name: Blood Collection / Drug Administration / Observation**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

**10X01 = 10 Marks**

**Q.1. Intra osseous injection is given in:**

- |                  |                       |
|------------------|-----------------------|
| a) Vein          | <b>b) Bone marrow</b> |
| c) Spinal cavity | d) Muscles            |

**Q.2. In subcutaneous injection, the skin is pinched between thumb and forefinger of left hand and needle inserted at:**

- |                    |                          |
|--------------------|--------------------------|
| a) 45 <sup>0</sup> | b) 5-10 <sup>0</sup>     |
| c) 40 <sup>0</sup> | <b>d) 90<sup>0</sup></b> |

**Q.3. Which of the following is the preferred site for intramuscular injection in adults?**

- |                   |                     |
|-------------------|---------------------|
| a) Deltoid        | b) Rectus femoris   |
| <b>c) Gluteal</b> | d) Vastus lateralis |

**Q.4. Which size of the green color cannula?**

- |             |                    |
|-------------|--------------------|
| a) 14 gauge | <b>b) 18 gauge</b> |
| c) 20 gauge | d) 22 gauge        |

**Q.5. A complete blood count test would require which colour vacutainer tube?**

- |                |          |
|----------------|----------|
| <b>a) Blue</b> | b) Red   |
| c) Black       | d) Green |

**Q.6. The intravenous site can be scrubbed with one of the following antiseptics prior to venipuncture:**

- |                       |               |
|-----------------------|---------------|
| a) Povidon- Iodine 7% | b) Sterillium |
| <b>c) 70% alcohol</b> | d) 5% Savlon  |

**Q.7. Patient is laid down in which position, before intramuscular injection is administered:**

- |                          |           |
|--------------------------|-----------|
| a) Laying down patient   | b) Dorsal |
| <b>c) Sim's position</b> | d) Prone  |

**Q.8. Eye drops are classified into which class of drug:**

- |                              |                      |
|------------------------------|----------------------|
| a) Infusion                  | b) Inhalation        |
| <b>c) Topical medication</b> | d) Parental medicine |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Glucose vial is known as:

- |                      |                    |
|----------------------|--------------------|
| a) Fluoride vial     | b) Fluoridate vial |
| c) Fluoridicity vial | d) EDTA vial       |

Q.10. When giving a patient IM injection preoperative medication, the practical nurse must remember to inject into site no more than?

- |         |         |
|---------|---------|
| a) 1 MI | b) 2 MI |
| c) 3 MI | d) 4 MI |

### Section – B

04X04 = 16 Marks

Q.1. Describe rectal route.

Drugs can be given in the form of solid or liquid.

#### Suppository

It can be used for local (topical) effect as well as systemic effect, e.g. indomethacin for rheumatoid arthritis.

#### Enema

Retention enema can be used for local effect as well as systemic effect. The drug is absorbed through rectal mucous membrane and produces systemic effect, e.g. diazepam for status epilepticus in children.

Q.2. Write the four advantage of capillary blood collection.

- > It is easy to obtain.
- > There are several collection sites on the body.
- > Testing can be done at home and with little training.
- > Only very a small amount of blood is needed.
- > Collection sites can be changed so that the risk of scarring and pain is lessened.

Q.3. What do you mean by intra-articular route?

Drug is injected directly into the joint space, e.g. hydrocortisone injection for rheumatoid arthritis. Strict aseptic precautions should be taken. Repeated administration may cause damage to the articular cartilage.

Q.4. What can happen needle stick injury.

Some people, such as health care workers are at increased risk of needle stick injury, which occurs when the skin is accidentally punctured by a used needle. Blood-borne diseases that could be transmitted by such an injury include human immunodeficiency virus (HIV), hepatitis B (HBV) and hepatitis C (HCV). Needle stick injuries still occur, however, and it is important that individuals in the health care field become well informed about the exposure risks and educated regarding the appropriate response.

### Section – C





04X06 = 24 Marks



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY




Explain the blood collection container.

A Vacutainer blood collection tube is a sterile glass or plastic test tube with a colored rubber stopper creating a vacuum seal inside of the tube, facilitating the drawing of a predetermined volume of liquid. Vacutainer tubes may contain additives designed to stabilize and preserve the specimen prior to analytical testing. Tubes are available with a safety-engineered stopper, with a variety of labeling options and draw volumes. The color of the top indicates the additives in the vial.

	<p><b>Red Vial (Plain vial)</b></p> <p>It is Plastic Serum Tubes have spray-coated silica and are used for serum determinations in chemistry, serology, and immunohematology. Does not contain any anticoagulant.</p>
	<p><b>EDTA Vial (Ethylenediaminetetraacetic Acid)</b></p> <p>It is spray-coated K2EDTA Tubes are used for whole blood hematology determinations and immunohematology testing.</p>
	<p><b>Heparin Vial</b></p> <p>Heparin Tubes are spray-coated with either lithium heparin or sodium heparin and are used for plasma determinations in chemistry.</p>
	<p><b>Glucose Vial</b></p> <p>Fluoride Tubes contain a glycolytic inhibitor and are used for glucose determinations on plasma.</p>



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

	<p><b>Citrate Vial/PT-INR</b></p> <p>The PT test are prothrombin time and pro time. INR stands for international normalized ratio. The PT/INR test is usually done when you are taking a blood thinner (anticoagulant) medicine, such as warfarin (Coumadin), to prevent blood clots.</p>
	<p><b>ESR Vial</b></p> <p>ESR test measures how quickly red blood cells settle to the bottom of a test tube. Inflammation or infection can lead to extra proteins in the blood, which can make the red blood cells settle faster.</p>
	<p><b>Blood Culture Vial</b></p> <p>Blood culture is a microbiological culture of blood. It is employed to detect infections that are spreading through the bloodstream (such as bacteremia, sepsis amongst others). This is possible because the bloodstream is usually a sterile environment.</p>

Q.2. Difference between the intramuscular and transdermal route.

### Intramuscular (i.m.) route

Drugs are injected into large muscles such as deltoid, gluteus Maximus and vastus lateralis, e.g. paracetamol, diclofenac, etc. A volume of 5–10 mL can be given at a time.

Advantages	Disadvantages
Absorption is more rapid as compared to oral route	Aseptic conditions are needed
Mild irritants, depot injections, soluble substances and suspensions can be given by this route	Intramuscular injections are painful and may cause abscess
	Self-administration is not possible
	There may be injury to the nerves

### Transdermal Route

A transdermal patch is a medicated adhesive patch that is placed on the skin to deliver a specific dose of medication through the skin and into the bloodstream. Often, this promotes healing to an injured area of the body. For example, scopolamine patch for sialorrhoea and motion sickness, nitroglycerin patch/ointment for angina, oestrogen patch for hormone replacement therapy (HRT).

Advantages	Disadvantages
Self-administration is possible	Expensive



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Patient compliance is better	Local irritation may cause dermatitis & itching
Duration of action is prolonged	
Systemic side effects are reduced	
Provides a constant plasma concentration of the drug	

Q.3. Define blood collection. How to preparation and handling of blood sample.

Blood specimen collection is performed routinely to obtain blood for laboratory testing. Blood can be obtained from venous access devices and sometimes by fingerstick. Blood is most frequently obtained via a peripheral vein puncture (venipuncture).

### Preparation of Sample Collection Equipment's

- A syringe with needle (gauge 21 or 23), one per patient
- A vacuum tube containing an anticoagulant such as EDTA, 4–5-mL capacity, one per patient;
- 70% ethyl alcohol or alcohol swabs
- Dry cotton (cotton ball, swab or gauze)
- Protective latex gloves (powder-free)
- A tourniquet
- A biohazard container or any puncture-resistance sharps container
- An infectious wastes container
- A smear preparation template
- A drying rack
- Record forms (i.e. malaria register) and
- A lead pencil or permanent marker pen.

### Blood Sample Handling and Transportation

- All specimens must be packaged carefully to avoid breakage or leakage of the specimen.
- Ensure all container lids are tightly secured before packaging.
- Ensure specimens are labelled.
- Place blood tubes, containing liquid into the box in an upright position whenever possible.
- Always transport the specimen transport box (STB) in an upright position.
- Keep specimens refrigerated before forwarding, unless otherwise indicated.

**DO NOT** freeze specimens.

Q.4. Describe local route.

### Local Routes

It is the simplest mode of administration of a drug at the site where the desired action is required. Systemic side effects are minimal.

<b>Topical</b>	Drug is applied to the skin or mucous membrane at various sites for local action.
<b>Oral cavity</b>	As a suspension, e.g. nystatin; as a troche, e.g. clotrimazole (for oral candidiasis); as a cream, e.g. acyclovir (for herpes labialis); as ointment and jelly, e.g. 5% lignocaine hydrochloride (for topical anaesthesia); as a spray, e.g. 10% lignocaine hydrochloride (for topical anaesthesia).
<b>GI tract</b>	As tablet that is not absorbed, e.g. neomycin (for sterilization of gut before surgery).
<b>Rectum and anal canal</b>	As an enema (administration of drug into the rectum in liquid form): <ul style="list-style-type: none"> <li>• Evacuant enema (for evacuation of bowel): For example, soap water enema—soap acts as a lubricant and water stimulates the rectum.</li> </ul>



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

	<ul style="list-style-type: none"><li>• Retention enema: For example, methylprednisolone in ulcerative colitis.</li><li>• As a suppository (administration of the drug in a solid form into the rectum), e.g. bisacodyl— for evacuation of bowels.</li></ul>
<b>Eye, ear and nose</b>	As drops, ointments and sprays (for infection, allergic conditions, etc.), e.g. gentamicin eye/ear drops.
<b>Bronchi</b>	As inhalation, e.g. salbutamol, ipratropium bromide, etc. (for bronchial asthma and chronic obstructive pulmonary disease).
<b>Skin</b>	As ointment, cream, lotion or powder, e.g. clotrimazole (antifungal) for cutaneous candidiasis.
<b>Intra-arterial route</b>	This route is rarely employed. It is mainly used during diagnostic studies such as coronary angiography and for the administration of some anticancer drugs, e.g. for treatment of malignancy involving limbs.

K. Karim



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1304**

**Time: 2 Hours**

**Course Name: Nutrition & Elimination II**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. A patient ask you what vitamin is best for eye sight:**

- |                           |                            |
|---------------------------|----------------------------|
| a) Vitamin B <sub>6</sub> | b) Vitamin B <sub>12</sub> |
| c) Vitamin A              | d) Vitamin C               |

**Q.2. Deficiency of which of the following vitamin causes Beriberi?**

- |              |              |
|--------------|--------------|
| a) Thiamine  | b) Vitamin C |
| c) Vitamin E | d) Vitamin D |

**Q.3. The most abundant nutrient present in the body is:**

- |                  |            |
|------------------|------------|
| a) Carbohydrates | b) Fat     |
| c) Water         | d) Protein |

**Q.4. Which of the following are fat soluble vitamin?**

- |              |              |
|--------------|--------------|
| a) Vitamin A | b) Vitamin C |
| c) Vitamin K | d) Vitamin D |

**Q.5. One gram of fat is:**

- |                  |                    |
|------------------|--------------------|
| a) Four calories | b) Nine calories   |
| c) Six calories  | d) Twelve calories |

**Q.6. A behavioral disorder in which a client consume large amount of food is referred to:**

- |                     |                    |
|---------------------|--------------------|
| a) Stress disorder  | b) Pica            |
| c) Anorexia Nervosa | d) Bulimia Nervosa |

**Q.7. Vitamin B<sub>3</sub> is called is:**

- |               |                     |
|---------------|---------------------|
| a) Riboflavin | b) Niacin           |
| c) Pyridoxine | d) Pantothenic acid |

**Q.8. Pellagra is caused due to the deficiency of:**

- |               |                     |
|---------------|---------------------|
| a) Niacin     | b) Pantothenic acid |
| c) Pyridoxine | d) Riboflavin       |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. A person with which condition may need a Foley catheter?

- a) Heart burn
- b) Diarrhea
- c) Spinal cord injury
- d) Bone fracture

Q.10. Total parenteral nutrition is delivered in which manner?

- a) By placing a tube into the stomach
- b) A placing a needle inserted into a small vein
- c) By placing a catheter into a large blood vessel
- d) By placing a tube inserted through the nose into the stomach

### Section – B

04X04 = 16 Marks

- Q.1. Describe vitamin B<sub>5</sub> and vitamin A.
- Q.2. Write down the nutritional life cycle of pregnant women.
- Q.3. What do you mean by suprapubic catheter?
- Q.4. What do you mean micronutrients? Write the name of macronutrients.

### Section – C

04X06 = 24 Marks

- Q.1. Explain parenteral nutrition.
- Q.2. Define colostomy. Explain the types of colostomy.
- Q.3. Define food poisoning. Describe the risk factors, complication, and prevention of food poisoning.
- Q.4. Elaborate the six complication and prevention of liver cirrhosis.

*K. Kaur*



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1304**

**Time: 2 Hours**

**Course Name: Nutrition & Elimination II**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. Which part of the bowel would a colostomy be placed?**

- |            |            |
|------------|------------|
| a) Ileum   | b) Colon   |
| c) Jejunum | d) Stomach |

**Q.2. Deficiency vitamin D causes...**

- |                    |                |
|--------------------|----------------|
| a) Night blindness | b) Beri – beri |
| c) Rickets         | d) Anemia      |

**Q.3. Maximum sources of energy in our body is...**

- |                  |            |
|------------------|------------|
| a) Carbohydrates | b) Fat     |
| c) Minerals      | d) Protein |

**Q.4. Fat soluble vitamin is:**

- |              |                 |
|--------------|-----------------|
| a) Vitamin A | b) Vitamin B    |
| c) Vitamin C | d) All of above |

**Q.5. One gram of carbohydrate is...**

- |                  |                    |
|------------------|--------------------|
| a) Four calories | b) Nine calories   |
| c) Six calories  | d) Twelve calories |

**Q.6. Insertion of nasogastric tube is a sterile procedure.**

- |         |          |
|---------|----------|
| a) True | b) False |
|---------|----------|

**Q.7. Which of the following is rich source of fat?**

- |                |                 |
|----------------|-----------------|
| a) Avocado oil | b) Olive oil    |
| c) Seeds       | d) All of above |

**Q.8. Riboflavin also called as...**

- |                           |                           |
|---------------------------|---------------------------|
| a) Vitamin B <sub>2</sub> | b) Vitamin B <sub>5</sub> |
| c) Vitamin B <sub>3</sub> | d) Vitamin B <sub>6</sub> |

**Q.9. A person with which condition may need a Foley catheter?**

- |                       |                  |
|-----------------------|------------------|
| a) Heart burn         | b) Diarrhea      |
| c) Spinal cord injury | d) Bone fracture |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.10. Total parenteral nutrition is delivered in which manner?

- a) By placing a tube into the stomach
- b) A placing a needle inserted into a small vein
- c) By placing a catheter into a large blood vessel
- d) By placing a tube inserted through the nose into the stomach

### Section – B

04X04 = 16 Marks

- Q.1. Describe vitamin B<sub>12</sub> and vitamin c.
- Q.2. Why does elderly people need more vitamin D and calcium then regular adults?
- Q.3. What do you mean by suprapubic catheter?
- Q.4. Write down the four indications of urinary catheterization.

### Section – C

04X06 = 24 Marks

- Q.1. Write down the three differences between the macro minerals and trace minerals.
- Q.2. Define colostomy. Explain the types of colostomy.
- Q.3. Define GORD. Explain the pathophysiology and complication of GORD.
- Q.4. What do you mean by eating disorder? Write down the four differences between the anorexia nervosa and bulimia nervosa.

K. K. K.



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1304**

**Time: 2 Hours**

**Course Name: Nutrition & Elimination II**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

Q.1. Which part of the bowel would a colostomy be placed?

- a) Ileum
- b) Colon
- c) Jejunum
- d) Stomach

Q.2. Deficiency vitamin D causes...

- a) Night blindness
- b) Beri – beri
- c) Rickets
- d) Anemia

Q.3. Maximum sources of energy in our body is...

- a) Carbohydrates
- b) Fat
- c) Minerals
- d) Protein

Q.4. Fat soluble vitamin is:

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- b) Vitamin B
- c) Vitamin C
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- a) Six calories
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- a) Avocado oil
- b) Olive oil
- c) Seeds
- d) All of above

Q.8. Riboflavin also called as...

- a) Vitamin B<sub>2</sub>
- b) Vitamin B<sub>5</sub>
- c) Vitamin B<sub>3</sub>
- d) Vitamin B<sub>6</sub>

Q.9. A person with which condition may need a Foley catheter?

- a) Heart burn
- b) Diarrhea
- c) Spinal cord injury
- d) Bone fracture



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.10. Total parenteral nutrition is delivered in which manner?

- a) By placing a tube into the stomach
- b) A placing a needle inserted into a small vein
- c) By placing a catheter into a large blood vessel**
- d) By placing a tube inserted through the nose into the stomach

### Section – B

04X04 = 16 Marks

Q.1. Describe vitamin B<sub>12</sub> and vitamin c.

<b>Vitamin C</b>	<p>Chemical name: Ascorbic acid</p> <ul style="list-style-type: none"><li>• It is water soluble.</li><li>• Deficiency may cause megaloblastic anemia.</li><li>• Good sources include: fruit and vegetables. The Kakadu plum and the camu camu fruit have the highest vitamin C contents of all foods. Liver also has high levels. Cooking destroys vitamin C.</li></ul>
<b>Vitamin B12</b>	<p>Chemical names: Cyanocobalamin, hydroxocobalamin, methylcobalamin</p> <ul style="list-style-type: none"><li>• It is water soluble.</li><li>• Deficiency may cause megaloblastic anemia, a condition where bone marrow produces unusually large, abnormal, immature red blood cells.</li><li>• Good sources include: fish, shellfish, meat, poultry, eggs, milk and dairy products, some fortified cereals and soy products, as well as fortified nutritional yeast.</li></ul>

Q.2. Why does elderly people need more vitamin D and calcium than regular adults.

Older adults need more calcium and vitamin D to help maintain bone health. Have three servings of calcium-rich foods and beverages each day. This includes fortified cereals and fruit juices, dark green leafy vegetables, canned fish with soft bones, milk and fortified plant beverages.

**Nutritional fibers** – an amount of 21 gr daily for women and 30 gr daily for men.

**Calcium** – an amount of 1200 mg daily.

**Vitamin D** – an amount of 800-1000 international units daily: the natural sources of vitamin D are food products rich in vitamin D (mainly fatty fish and enriched milk products) and exposure to the sun's ultra violet rays.

Q.3. What do you mean by suprapubic catheter?

#### Suprapubic Catheter

A suprapubic catheter is a type of indwelling catheter. Rather than being inserted through your urethra, the catheter is inserted through a hole in your abdomen and then directly into your bladder. This procedure can be carried out under general anaesthetic, epidural anaesthetic or local anaesthetic. The catheter is usually changed every 6 to 8 weeks.



Q.4. Write down the four indication of urinary catheterization.

### Indications

By inserting a Foley catheter, you are gaining access to the bladder and its contents. Thus enabling you to drain bladder contents, decompress the bladder, obtain a specimen, and introduce a passage into the GU tract. This will allow you to treat urinary retention, and bladder outlet obstruction. Urinary output is also a sensitive indicator of volume status and renal perfusion (and thus tissue perfusion also). In the emergency department, catheters can be used to aid in the diagnosis of GU bleeding. In some cases, as in urethral stricture or prostatic hypertrophy, insertion will be difficult and early consultation with urology is essential

## Section – C

04X06 = 24 Marks

Q.1. Write down the three difference between the macro minerals and trace minerals.

### Minerals – Macrominerals

Macrominerals are needed in larger amounts than trace minerals in order to perform their specific roles in your body. The macrominerals and some of their functions are:

<b>Calcium</b>	Necessary for proper structure and function of bones and teeth. Assists in muscle function and blood vessel contraction.
<b>Phosphorus</b>	Part of bone and cell membrane structure.
<b>Magnesium</b>	Assists with over 300 enzyme reactions, including regulation of blood pressure.
<b>Sodium</b>	Electrolyte that aids fluid balance and maintenance of blood pressure.
<b>Chloride</b>	Often found in combination with sodium. Helps maintain fluid balance and is used to make digestive juices.
<b>Potassium</b>	Electrolyte that maintains fluid status in cells and helps with nerve transmission and muscle function.
<b>Sulfur</b>	Part of every living tissue and contained in the amino acids methionine and cysteine

### Trace Minerals

Trace minerals are needed in smaller amounts than macrominerals but still enable important functions in your body. The trace minerals and some of their functions are:

<b>Iron</b>	Helps provide oxygen to muscles and assists in the creation of certain hormones.
<b>Manganese</b>	Assists in carbohydrate, amino acid and cholesterol metabolism.
<b>Copper</b>	Required for connective tissue formation, as well as normal brain and nervous system function.
<b>Zinc</b>	Necessary for normal growth, immune function and wound healing.
<b>Iodine</b>	Assists in thyroid regulation.
<b>Fluoride</b>	Necessary for the development of bones and teeth.
<b>Selenium</b>	Important for thyroid health, reproduction and defense against oxidative damage.

Q.2. Define colostomy. Explain the types of colostomy.

### Colostomy

A colostomy is an opening (stoma) in the large intestine (colon), or the surgical procedure that creates one. The opening is formed by drawing the healthy end of the colon through an incision in the anterior abdominal wall and suturing it into place. This opening, often in conjunction with an



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

attached stoma appliance, provides an alternative channel for Faeces to leave the body. Thus if the natural anus is not available for that job (for example, in cases where it has been removed in the fight against colorectal cancer or ulcerative colitis), an artificial anus takes over. It may be reversible or irreversible, depending on the circumstances.

### Types of Colostomy

Each type is named for the section of the colon in which it is needed.

Sigmoid colostomy	This is the most common type. It is located in the bottom part of the large intestine. The sigmoid colon moves waste to the rectum. Sigmoid colostomies produce stool that is more solid and regular than other colostomies.
Transverse colostomy	The transverse colon crosses the top of the abdomen. Stool in this area is usually soft. This is because only a small portion of the colon has absorbed water from the indigestible material. This common type of colostomy has 3 versions: <ul style="list-style-type: none"> <li>• A loop colostomy. This colostomy creates a stoma through which stool exits. In this type, the colon stays connected to the rectum. As a result, people will sometimes pass stool or gas through the rectum.</li> <li>• A single-barrel colostomy. This surgery removes the colon below the colostomy, including the rectum and anal opening. This type of colostomy is permanent.</li> <li>• A double-barrel colostomy. This divides the colon into 2 ends that form separate stomas. Stool exits from 1 of the stomas. Mucus made by the colon exits from the other. This type of transverse colostomy is the least common.</li> </ul>
Descending colostomy	The descending colon takes waste down the left side of the abdomen. The stool there is usually firm because it has moved through the working parts of the colon.
Ascending colostomy	The ascending colon runs from the beginning of the large intestine to the right side of the abdomen. In this procedure, only part of the colon still works. As a result, little water is absorbed from the waste. This means the stool is usually liquid. This type of colostomy is rare. An ileostomy is more appropriate for this portion of the colon.

Q.3. Define GORD. Explain the pathophysiology and complication of GORD.

### Gastro-oesophageal Reflux Disease (GORD)

Gastro-oesophageal reflux disease (GORD) is a condition in which reflux of the stomach contents into the oesophagus results in symptoms or, occasionally, complications. This is distinct from asymptomatic physiological reflux and from functional heartburn, where the symptoms resemble GORD but are unrelated to acid reflux. GORD is one of the most common gastrointestinal conditions in Australia. It is estimated to occur in 10–15% of the population, with a rising prevalence, most likely due to obesity. In addition to obesity, risk factors include advanced age, male gender, Caucasian ethnicity, diets high in fats, sugars and salt, and smoking.

### Pathophysiology

Defective function of the lower oesophageal sphincter leads to excessive acid exposure in the lower oesophagus, most commonly during transient lower oesophageal relaxations.<sup>1</sup> In the majority of



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cases, this leads to symptoms such as heartburn and regurgitation. However, in a small but important minority, complications of peptic oesophagitis may occur including oesophageal strictures, Barrett's oesophagus and rarely oesophageal adenocarcinoma, the rate of which is increased fivefold in patients with chronic GORD compared to the general population. Although hiatus hernia is statistically associated with gastro-oesophageal reflux, the presence of a hiatus hernia is neither required nor sufficient for a diagnosis of GORD. The presence of a hiatus hernia is relevant to surgical treatment, but does not affect the approach to medical therapy.

### Complications of Reflux

Complications of gastro-oesophageal reflux disease can include:

- ulcers (sores) in the oesophagus that can cause bleeding (which can result in vomiting blood or iron-deficiency anaemia) or pain when swallowing;
- stricture (a narrowing of the oesophagus that can cause difficulty swallowing); and
- Barrett's oesophagus (where there is a slightly increased risk of oesophageal cancer due to a change in the type of cells lining the oesophagus).

Q.4. What do you mean by eating disorder? Write down the four difference between the anorexia nervosa and bulimia nervosa.

### Eating Disorder

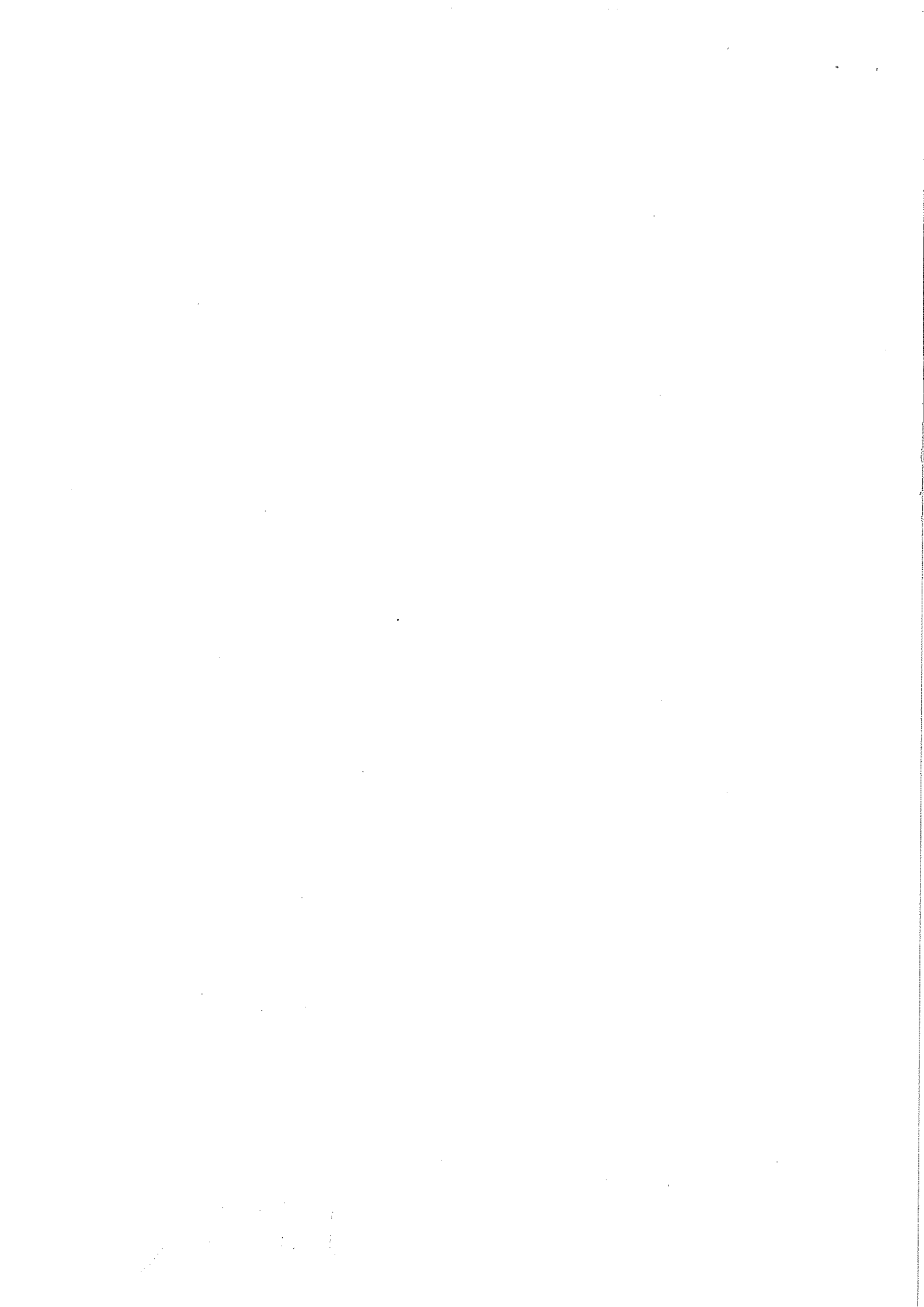
Eating disorders are serious conditions related to persistent eating behaviors that negatively impact your health, your emotions and your ability to function in important areas of life. The most common eating disorders are anorexia nervosa, bulimia nervosa and binge-eating disorder. Most eating disorders involve focusing too much on your weight, body shape and food, leading to dangerous eating behaviors. These behaviors can significantly impact your body's ability to get appropriate nutrition. Eating disorders can harm the heart, digestive system, bones, and teeth and mouth, and lead to other diseases. Eating disorders often develop in the teen and young adult years, although they can develop at other ages. With treatment, you can return to healthier eating habits and sometimes reverse serious complications caused by the eating disorder.

### Anorexia nervosa

Anorexia (an-o-REK-see-uh) nervosa — often simply called anorexia — is a potentially life-threatening eating disorder characterized by an abnormally low body weight, intense fear of gaining weight, and a distorted perception of weight or shape. People with anorexia use extreme efforts to control their weight and shape, which often significantly interferes with their health and life activities. When you have anorexia, you excessively limit calories or use other methods to lose weight, such as excessive exercise, using laxatives or diet aids, or vomiting after eating. Efforts to reduce your weight, even when underweight, can cause severe health problems, sometimes to the point of deadly self-starvation.

### Bulimia nervosa

Bulimia (boo-LEE-me-uh) nervosa — commonly called bulimia — is a serious, potentially life-threatening eating disorder. When you have bulimia, you have episodes of bingeing and purging that involve feeling a lack of control over your eating. Many people with bulimia also restrict their eating during the day, which often leads to more binge eating and purging. During these episodes, you typically eat a large amount of food in a short time, and then try to rid yourself of the extra calories in an unhealthy way. Because of guilt, shame and an intense fear of weight gain from overeating, you may force vomiting or you may exercise too much or use other methods, such as laxatives, to get rid of the calories. If you have bulimia, you're probably preoccupied with your weight and body shape, and may judge yourself severely and harshly for your self-perceived flaws. You may be at a normal weight or even a bit overweight.





**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1304**

**Time: 2 Hours**

**Course Name: Nutrition & Elimination II**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. A patient ask you what vitamin is best for eye sight:**

- |                           |                            |
|---------------------------|----------------------------|
| a) Vitamin B <sub>6</sub> | b) Vitamin B <sub>12</sub> |
| c) Vitamin A              | d) Vitamin C               |

**Q.2. Deficiency of which of the following vitamin causes Beriberi?**

- |              |              |
|--------------|--------------|
| a) Thiamine  | b) Vitamin C |
| c) Vitamin E | d) Vitamin D |

**Q.3. The most abundant nutrient present in the body is:**

- |                  |            |
|------------------|------------|
| a) Carbohydrates | b) Fat     |
| c) Water         | d) Protein |

**Q.4. Which of the following are fat soluble vitamin?**

- |              |              |
|--------------|--------------|
| a) Vitamin A | b) Vitamin C |
| c) Vitamin K | d) Vitamin D |

**Q.5. One gram of fat is:**

- |                  |                    |
|------------------|--------------------|
| a) Four calories | b) Nine calories   |
| c) Six calories  | d) Twelve calories |

**Q.6. A behavioral disorder in which a client consume large amount of food is referred to:**

- |                     |                    |
|---------------------|--------------------|
| a) Stress disorder  | b) Pica            |
| c) Anorexia Nervosa | d) Bulimia Nervosa |

**Q.7. Vitamin B<sub>3</sub> is called is:**

- |               |                     |
|---------------|---------------------|
| a) Riboflavin | b) Niacin           |
| c) Pyridoxine | d) Pantothenic acid |

**Q.8. Pellagra is caused due to the deficiency of:**

- |               |                     |
|---------------|---------------------|
| a) Niacin     | b) Pantothenic acid |
| c) Pyridoxine | d) Riboflavin       |



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Q.9. A person with which condition may need a Foley catheter?

- a) Heart burn
- b) Diarrhea
- c) Spinal cord injury
- d) Bone fracture

Q.10. Total parenteral nutrition is delivered in which manner?

- a) By placing a tube into the stomach
- b) A placing a needle inserted into a small vein
- c) By placing a catheter into a large blood vessel
- d) By placing a tube inserted through the nose into the stomach

## Section – B

04X04 = 16 Marks

Q.1. Describe vitamin B<sub>5</sub> and vitamin A.

### Vitamin B<sub>5</sub>

Chemical name: Pantothenic acid

- It is water soluble.
- Deficiency may cause paresthesia, or "pins and needles."  
Good sources include: meats, whole-grains (milling may remove it), broccoli, avocados, royal jelly, and fish ovaries.

### Vitamin A

Chemical names: Retinol, retinal, and four carotenoids, including beta carotene.

- It is fat soluble.
- Deficiency may cause night-blindness and keratomalacia, an eye disorder that results in a dry cornea.
- Good sources include: Liver, cod liver oil, carrots, broccoli, sweet potato, but-ter, kale, spinach, pumpkin, collard greens, some cheeses, egg, apricot, cantaloupe melon, and milk.

Q.2. Write down the nutritional life cycle of pregnant women.

### Pregnancy

Pregnancy is a special time in a woman's life. Healthy eating can increase the chances of having a healthy baby. Gradual weight gain is important; 2-4 pounds during the first three months, then a little less than 1 pound per week for the remainder of the pregnancy. A total gain of 25-35 pounds is recommended. If a woman is overweight at the beginning of the pregnancy, she should not diet, but instead limit the amount of desserts and other "extras." She needs to continue a gradual line of weight gain parallel to the lines on the Weight Gain during Pregnancy chart in Member's Manual Level D. If a woman is underweight at the beginning of pregnancy, she should increase her food intake and continue a gradual line of weight gain parallel to the lines in the above-mentioned chart. In addition, a pregnant woman has specific water and fluid needs, including to:

- drink at least 6-8 cups of fluid daily;
- limit the amount of caffeine-containing beverages.
- limit soft drinks and sugared drinks; and
- consume beverages that contain aspartame and saccharin in moderation.



Q.3. What do you mean by suprapubic catheter?

### Suprapubic Catheter

A suprapubic catheter is a type of indwelling catheter. Rather than being inserted through your urethra, the catheter is inserted through a hole in your abdomen and then directly into your bladder. This procedure can be carried out under general anaesthetic, epidural anaesthetic or local anaesthetic. The catheter is usually changed every 6 to 8 weeks.

Q.4. What do you mean micronutrients? Write the name of macronutrients.

### Micronutrients

Micronutrients, as opposed to macronutrients (protein, carbohydrates and fat), are comprised of vitamins and minerals which are required in small quantities to ensure normal metabolism, growth and physical well-being.

### Minerals – Macrominerals

Macrominerals are needed in larger amounts than trace minerals in order to perform their specific roles in your body. The macrominerals and some of their functions are:

<b>Calcium</b>	Necessary for proper structure and function of bones and teeth. Assists in muscle function and blood vessel contraction.
<b>Phosphorus</b>	Part of bone and cell membrane structure.
<b>Magnesium</b>	Assists with over 300 enzyme reactions, including regulation of blood pressure.
<b>Sodium</b>	Electrolyte that aids fluid balance and maintenance of blood pressure.
<b>Chloride</b>	Often found in combination with sodium. Helps maintain fluid balance and is used to make digestive juices.
<b>Potassium</b>	Electrolyte that maintains fluid status in cells and helps with nerve transmission and muscle function.
<b>Sulfur</b>	Part of every living tissue and contained in the amino acids methionine and cysteine.

## Section – C

04X06 = 24 Marks

Q.1. Explain parenteral nutrition.

### Parenteral Nutrition

Parenteral nutrition (PN) is intravenous administration of nutrition, which may include protein, carbohydrate, fat, minerals and electrolytes, vitamins and other trace elements for patients who cannot eat or absorb enough food through tube feeding formula or by mouth to maintain good nutrition status. Achieving the right nutritional intake in a timely manner can help combat complications and be an important part of a patient's recovery. Parenteral nutrition is sometimes called Total Parenteral Nutrition (TPN).

### Who receives Parenteral Nutrition?

People of all ages receive parenteral nutrition. It may be given to infants and children, as well as to adults. People can live well on parenteral nutrition for as long as it is needed. Many times, parenteral nutrition is used for a short time; then it is lessened or discontinued when the person begins to switch to tube feeding or eat enough by mouth. Parenteral nutrition bypasses the normal digestion in the gastrointestinal (GI) tract. It is a sterile liquid chemical formula given directly into the bloodstream through an intravenous (IV) catheter (needle in the vein).

Total parenteral nutrition (TPN) is provided when the gastrointestinal tract is non-functional because of an interruption in its continuity (it is blocked, or has a leak – a fistula) or because its absorptive capacity is impaired. It has been used for comatose patients, although enteral feeding is usually preferable, and less prone to complications. Parenteral nutrition is used to prevent



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malnutrition in patients who are unable to obtain adequate nutrients by oral or enteral routes. The Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition recommends waiting until hospital day number seven. Absolute indications for TPN:

- Short bowel syndrome
- Small bowel obstruction
- Active gastrointestinal bleeding
- Pseudo-obstruction with complete intolerance to food
- High-output (defined as > 500ml/day) enteric-cutaneous fistulas (unless a feeding tube can be passed distal to the fistula)

Prepared solutions generally consist of water and electrolytes; glucose, amino acids, and lipids; essential vitamins, minerals and trace elements are added or given separately. Previously lipid emulsions were given separately but it is becoming more common for a "three-in-one" solution of glucose, proteins, and lipids to be administered.

## Q.2. Define colostomy. Explain the types of colostomy.

### Colostomy

A colostomy is an opening (stoma) in the large intestine (colon), or the surgical procedure that creates one. The opening is formed by drawing the healthy end of the colon through an incision in the anterior abdominal wall and suturing it into place. This opening, often in conjunction with an attached stoma appliance, provides an alternative channel for Faeces to leave the body. Thus if the natural anus is not available for that job (for example, in cases where it has been removed in the fight against colorectal cancer or ulcerative colitis), an artificial anus takes over. It may be reversible or irreversible, depending on the circumstances.

Sigmoid colostomy	This is the most common type. It is located in the bottom part of the large intestine. The sigmoid colon moves waste to the rectum. Sigmoid colostomies produce stool that is more solid and regular than other colostomies.
Transverse colostomy	The transverse colon crosses the top of the abdomen. Stool in this area is usually soft. This is because only a small portion of the colon has absorbed water from the indigestible material. This common type of colostomy has 3 versions: <ul style="list-style-type: none"> <li>• A loop colostomy. This colostomy creates a stoma through which stool exits. In this type, the colon stays connected to the rectum. As a result, people will sometimes pass stool or gas through the rectum.</li> <li>• A single-barrel colostomy. This surgery removes the colon below the colostomy, including the rectum and anal opening. This type of colostomy is permanent.</li> <li>• A double-barrel colostomy. This divides the colon into 2 ends that form separate stomas. Stool exits from 1 of the stomas. Mucus made by the colon exits from the other. This type of transverse colostomy is the least common.</li> </ul>
Descending colostomy	The descending colon takes waste down the left side of the abdomen. The stool there is usually firm because it has moved through the working parts of the colon.



Ascending colostomy	The ascending colon runs from the beginning of the large intestine to the right side of the abdomen. In this procedure, only part of the colon still works. As a result, little water is absorbed from the waste. This means the stool is usually liquid. This type of colostomy is rare. An ileostomy is more appropriate for this portion of the colon.
---------------------	---

**Q.3. Define food poisoning. Describe the risk factors, complication, and prevention of food poisoning.**

### **Food Poisoning**

Food poisoning, also called foodborne illness, is illness caused by eating contaminated food. Infectious organisms — including bacteria, viruses and parasites — or their toxins are the most common causes of food poisoning. Infectious organisms or their toxins can contaminate food at any point of processing or production. Contamination can also occur at home if food is incorrectly handled or cooked.

### **Risk Factors**

Whether you become ill after eating contaminated food depends on the organism, the amount of exposure, your age and your health. High-risk groups include:

- **Older adults**
  - As you get older, your immune system may not respond as quickly and as effectively to infectious organisms as when you were younger.
- **Pregnant women**
  - During pregnancy, changes in metabolism and circulation may increase the risk of food poisoning. Your reaction may be more severe during pregnancy. Rarely, your baby may get sick, too.
- **Infants and young children**
  - Their immune systems haven't fully developed.
- **People with chronic disease**
  - Having a chronic condition — such as diabetes, liver disease or AIDS — or receiving chemotherapy or radiation therapy for cancer reduces your immune response.

### **Complications**

Some types of food poisoning have potentially serious complications for certain people. These include:

#### **Listeria monocytogenes**

Complications of a listeria food poisoning may be most severe for an unborn baby. Early in pregnancy, a listeria infection may lead to miscarriage. Later in pregnancy, a listeria infection may lead to stillbirth, premature birth or a potentially fatal infection in the baby after birth — even if the mother was only mildly ill. Infants who survive a listeria infection may experience long-term neurological damage and delayed development.

#### **Escherichia coli (E. coli)**

Certain E. coli strains can cause a serious complication called hemolytic uremic syndrome. This syndrome damages the lining of the tiny blood vessels in the kidneys, sometimes leading to kidney failure. Older adults, children younger than 5 and people with weakened immune systems have a higher risk of developing this complication. If you're in one of these risk categories, see your doctor



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at the first sign of profuse or bloody diarrhea.

### Prevention

To prevent food poisoning at home:

#### **Wash your hands, utensils and food surfaces often**

Wash your hands well with warm, soapy water before and after handling or preparing food. Use hot, soapy water to wash utensils, cutting boards and other surfaces you use.

#### **Keep raw foods separate from ready-to-eat foods**

When shopping, preparing food or storing food, keep raw meat, poultry, fish and shellfish away from other foods. This prevents cross-contamination.

#### **Cook foods to a safe temperature**

The best way to tell if foods are cooked to a safe temperature is to use a food thermometer. You can kill harmful organisms in most foods by cooking them to the right temperature. Cook ground beef to 160 F (71.1 C); steaks, roasts and chops, such as lamb, pork and veal, to at least 145 F (62.8 C). Cook chicken and turkey to 165 F (73.9 C). Make sure fish and shellfish are cooked thoroughly.

#### **Refrigerate or freeze perishable foods promptly**

Within two hours of purchasing or preparing them. If the room temperature is above 90 F (32.2 C), refrigerate perishable foods within one hour.

#### **Defrost food safely**

Don't thaw food at room temperature. The safest way to thaw food is to defrost it in the refrigerator. If you microwave frozen food using the "defrost" or "50 percent power" setting, be sure to cook it immediately.

#### **Throw it out when in doubt**

If you aren't sure if a food has been prepared, served or stored safely, discard it. Food left at room temperature too long may contain bacteria or toxins that can't be destroyed by cooking. Don't taste food that you're unsure about — just throw it out. Even if it looks and smells fine, it may not be safe to eat.

### Q.4. Elaborate the six complication and prevention of liver cirrhosis.

#### 2.1 Complications

Complications of cirrhosis can include:

- **High blood pressure in the veins that supply the liver (portal hypertension).**
  - Cirrhosis slows the normal flow of blood through the liver, thus increasing pressure in the vein that brings blood to the liver from the intestines and spleen.
- **Swelling in the legs and abdomen**
  - The increased pressure in the portal vein can cause fluid to accumulate in the legs (edema) and in the abdomen (ascites). Edema and ascites also may result from the inability of the liver to make enough of certain blood proteins, such as albumin.
- **Enlargement of the spleen (splenomegaly)**
  - Portal hypertension can also cause changes to and swelling of the spleen, and trapping of white blood cells and platelets. Decreased white blood cells and platelets in your blood can be the first sign of cirrhosis.



- **Bleeding**
  - Portal hypertension can cause blood to be redirected to smaller veins. Strained by the extra pressure, these smaller veins can burst, causing serious bleeding. Portal hypertension may cause enlarged veins (varices) in the esophagus (esophageal varices) or the stomach (gastric varices) and lead to life-threatening bleeding. If the liver can't make enough clotting factors, this also can contribute to continued bleeding.
- **Infections**
  - If you have cirrhosis, your body may have difficulty fighting infections. Ascites can lead to bacterial peritonitis, a serious infection.
- **Malnutrition**
  - Cirrhosis may make it more difficult for your body to process nutrients, leading to weakness and weight loss.
- **Buildup of toxins in the brain (hepatic encephalopathy)**
  - A liver damaged by cirrhosis isn't able to clear toxins from the blood as well as a healthy liver can. These toxins can then build up in the brain and cause mental confusion and difficulty concentrating. With time, hepatic encephalopathy can progress to unresponsiveness or coma.
- **Jaundice**
  - Jaundice occurs when the diseased liver doesn't remove enough bilirubin, a blood waste product, from your blood. Jaundice causes yellowing of the skin and whites of the eyes and darkening of urine.
- **Bone disease**
  - Some people with cirrhosis lose bone strength and are at greater risk of fractures.
- **Increased risk of liver cancer**
  - A large proportion of people who develop liver cancer have pre-existing cirrhosis.
- **Acute-on-chronic cirrhosis**
  - Some people end up experiencing multiorgan failure. Researchers now believe this is a distinct complication in some people who have cirrhosis, but they don't fully understand its causes.

*K. Kaur*



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1305**

**Time: 2 Hours**

**Course Name: Mobilization & Movement**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. All the following are long bones except:**

- |            |            |
|------------|------------|
| a) Humerus | b) Femur   |
| c) Tibia   | d) Scapula |

**Q.2. Which of the following is correct regarding tendon?**

- |   |   |
|---|---|
| a) It connect bone muscle                   | b) It possible strength to muscle           |
| c) It lubricates joints with synovial joint | d) It relieve friction between moving parts |

**Q.3. Fall are a normal part of aging and are not preventable. In this statement true or false?**

- |         |          |
|---------|----------|
| a) True | b) False |
|---------|----------|

**Q.4. All of the following are types of fracture except:**

- |              |                |
|--------------|----------------|
| a) Simple    | b) Imapcted    |
| c) Lacerated | d) Complicated |

**Q.5. What patient are at the highest risk for falling?**

- |                      |                       |
|----------------------|-----------------------|
| a) History of fall   | b) Impaired cognition |
| c) Impaired mobility | d) All of above       |

**Q.6. A contracture can be treated with the following:**

- |                                    |                                    |
|------------------------------------|------------------------------------|
| a) Use active and passive movement | b) Apply skin or skeletal traction |
| c) Apply serial corrective caste   | d) Release soft tissue surgically  |

**Q.7. The ligaments joint:**

- |                     |                  |
|---------------------|------------------|
| a) Muscle to muscle | b) Bone to bone  |
| c) Muscle to bone   | d) None of these |

**Q.8. When a large bone is affected, such as the pelvis or femur:**

- |  |                  |
|--|------------------|
| a) The suffer may look pale and clammy | b) Feeling faint |
| c) feeling with nausea                 | d) All of above  |



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Q.9. What are the most common risk factors for a fall?

- a) Inappropriate footwear
- b) Weak muscles & poor balance
- c) Consuming too much alcohol
- d) All of above

Q.10. Incomplete fracture is:

- a) Bone is broken in a thin crack
- b) Bone is broken on one side, while the other side is bent
- c) Bone collapses under pressure
- d) Bone is broken on one side and a bump or raised buckle develops on the other side

### Section – B

04X04 = 16 Marks

Q.1. Write down the phase of fall.

Q.2. Write down the main goals, of moving and positioning with regards to amputation management.

Q.3. Define movement. Write down the clinical presentation of spinal instability.

Q.4. Draw the flow chart of Morse fall scale.

### Section – C

04X06 = 24 Marks

Q.1. Define fall. Describe the Extrinsic factors of fall.

Q.2. What do you mean contracture? Write down the four risk factors and general rules for poisoning contracture patient.

Q.3. Define fracture. Describe the types and treatment of fracture.

Q.4. How to patient transfer from bed to stretcher.

*X. Kaur*



**School of Health Care and Paramedics**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

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**Time: 2 Hours**

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**Section – A**

**10X01 = 10 Marks**

**Q.1. All the following are long bones except:**

- |            |                   |
|------------|-------------------|
| a) Humerus | b) Femur          |
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- |  |                        |
|--|------------------------|
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| c) feeling with nausea                 | <b>d) All of above</b> |



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Q.9. Incomplete fracture is:

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- b) Bone is broken on one side, while the other side is bent**
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- d) Bone is broken on one side and a bump or raised buckle develops on the other side

Q.10. What are the most common risk factors for a fall?

- a) Inappropriate footwear
- b) Weak muscles & poor balance
- c) Consuming too much alcohol
- d) All of above**

## Section – B

04X04 = 16 Marks

Q.1. Write down the phase of fall.

Phase 1 (Initial Event)	The person's footprint shifts and the balance shifts while walking (e.g., muscle weakness and / or surrounding cables).
Phase 2 (loss of balance)	The upright posture can no longer be compensated by correcting the balance (e.g. neurological disorders).
Phase 3 (Impact Phase)	Upon impact of the falling person on the ground, the impact forces are transmitted to the body - injury is possible.

Q.2. Write down the main goals of moving and positioning with regards to amputation management.

The main goals of moving and positioning with regard to amputee management are to:

- Prevent problems arising as a consequence of reduced mobility
- Prevent compromise to the Remaining, contralateral limb in lower limb amputees
- Help to control residual limb oedema in order to assist wound healing
- Help to decrease phantom (sensation in the part of the extremity that has been amputated) and residual limb pain.
- Prevent contractures and maintain joint range of movement and muscle strength in order to maximize function and rehabilitation potential (particularly if the patient's goal is prosthetic rehabilitation)
- Assist the restoration of functional independence as soon as possible.

Q.3. Define movement. Write down the clinical presentation of spinal instability.

**Spinal instability**

Spinal cord compression (SCC) or spinal cord injury (SCI) is when there is damage to the spinal cord either from trauma or non-traumatic causes, leading to functional impairment.

**Clinical presentation**

The clinical presentations of SCI and SCC are dependent on the location within the spinal cord or cauda equina and the degree and duration of compression. In SCC, early diagnosis is crucial in order to at best prevent and otherwise minimize irreversible neuro- logical damage.

Common symptoms of SCI include:



## Back pain and/or radicular pain

- Nerve root symptoms resulting in pain or loss of sensation within a dermatome
- Respiratory compromise
- Limb weakness
- Sensory loss
- Bladder and/or bowel dysfunction
- Sexual dysfunction

### Q.4. Draw the flow chart of Morse fall scale.

#### Morse Fall Scale

The Morse Fall Scale (MFS) is a rapid and simple method of assessing a patient's likelihood of falling. A large majority of nurses (82.9%) rate the scale as "quick and easy to use," and 54% estimated that it took less than 3 minutes to rate a patient. It consists of six variables that are quick and easy to score, and it has been shown to have predictive validity and interrater reliability. The MFS is used widely in acute care settings, both in the hospital and long term care inpatient settings.

Item	Scale	Scoring
1. History of falling; immediate or within 3 months	No 0 Yes 25	
2. Secondary diagnosis	No 0 Yes 15	
3. Ambulatory aid <sup>1</sup> Bed rest/nurse assist Crutches/cane/walker Furniture	0 15 30	
4. IV/Heparin Lock	No 0 Yes 20	
5. Gait/Transferring Normal/bedrest/immobile Weak <sup>1</sup> Impaired	0 10 20	
6. Mental status <sup>1</sup> Oriented to own ability Forgets limitations	0 15	

## Section – C

04X06 = 24 Marks

### Q.1. Define fall. Describe the Extrinsic factors of fall.

#### Fall

The body's capacity for locomotion (a purposeful change in the position and posture of the body in space) under constantly disturbing environmental influences is the result of a functioning postural system. Locomotion means walking or running as well as acrobatic gymnastics exercises. "A fall is an event where the person inadvertently lands on the ground or at another lower level" (WHO, 2007).

#### Extrinsic Factors (External Causes)

A human's environment carries many dangers known as causes of falls. Unsuitable footwear, poor lighting, obstacles such as cables, slippery carpets and smooth floors (eg tiles, linoleum) are just a few examples. With the learning of crawling and running especially toddlers are endangered by falls. In particular, if baby walkers are used, z. Door sills and edges of the carpet. Dangerous moments. Children can fall out of cots or high beds, fall over with high chairs, fall off balconies or windows.



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

## Aids

Defective, worn or unsuitable aids (wheelchair, cane), brakes that are not locked, missing handles in bathrooms and corridors are other aspects that must be considered as a matter of fall. Other physical environmental factors include inflow and outflow systems (e.g., infusion, drains) and other mechanical aids (e.g., splints). They can restrict the movement of the affected person and thus represent stumbling blocks.

## Fixing measures / bed rail.

Although restraints and bed rails are designed to protect adults from falling, they are a potential cause of falls. Toddlers with lowered bed rails can fall out of bed at unattended moments.

## Behavioral and situational causes

In infants, it is not uncommon for the carelessness of caregivers, e.g. leads to a fall from the changing table in an unobserved moment. In addition, children are not able to recognize dangerous situations or to assess dangers and their consequences. The cognitive structures are not yet adequately developed (see intrinsic factors). Childish curiosity and not estimating or not recognizing dangers is a dangerous combination that leads to fall accidents. Everyday activities such, for example, opening a tall cabinet door, raising or leaning forward to reach objects are possible causes of falls. All transfers, e.g. Chair, wheelchair, bed and toilet transfers can lead to a fall. Every change to a new environment harbors dangers that can be the cause of a fall. Especially the first week after a hospitalization is considered risky.

**Q.2. What do you mean contracture? Write down the four risk factors and general rules for poisoning contracture patient.**

## Contractures

A functional posture and movement device makes it possible to keep upright, to move quickly and to differentiate with the upper extremity. Without thinking about it, people overcome obstacles in their daily lives. For example, high entry points on the bus, reach objects in the upper compartments of a shelf and bend down to pick something off the floor. Many people experience restricted mobility (contractures) in the course of life due to a variety of causes. These can take on such proportions that those affected depend on help from caregivers.

## Risk factors

Risk factors with regard to the development of contractures are:

- Diseases of the joints (e.g., joint inflammation and injury or degenerative gene changes),
- Disorders of the soft tissue apparatus (muscular diseases, injuries and tendon or muscle shortening, shrinkage of capsules and ligaments),
- Diseases of the nervous system (apoplexia cerebria, multiple sclerosis, Parkinson's disease),
- Illnesses associated with the occurrence of paralysis,
- mental illnesses (depression and dementia changes, often leading to inactivity and / or depression of drive and consequent lack of exercise),
- immobilisation (for example by rail storage or gypsum treatment),
- Miscarriage due to pain,
  
- Bed rest (for example, in a reduced general condition), positioning of the patient on a soft bed for decubitus prophylaxis,
- Sedation, exsiccosis.



## General rules for positioning

Care should be taken in each position to avoid pressure on superficial nerve areas as flaccid paralysis may develop in the compressed nerve supply area:

- Wounds should not be subject to heavy drag due to significant angular changes in the adjacent or underlying joint. The healing process would be disturbed and prolonged.
- Patients with spastic paralysis require a position in tonus-regulating joint positions. Limb palsy areas should be carefully positioned to avoid damaging stretching or overstretching.
- The positioning can be done in the back, side or prone position. It should, if this is possible in the context of decubitus prophylaxis possible on as hard as possible mattress.

## Q.3. Define fracture. Describe the types and treatment of fracture.

A fracture is a broken bone. It can range from a thin crack to a complete break. Bone can fracture crosswise, lengthwise, in several places, or into many pieces. Most fractures happen when a bone is impacted by more force or pressure than it can support. If you suspect you have a fracture, take medical help immediately.

### Types of Fracture

Fractures can be classified as closed or open, as well as incomplete or complete:

#### Closed vs. open

A closed fracture is also called a simple fracture. In a closed fracture, the broken bone doesn't break your skin. An open fracture is also called a compound fracture. In an open fracture, the ends of the broken bone tear your skin. When your bone and other internal tissues are exposed, it puts you at higher risk of infection.

#### Incomplete Fracture

In an Incomplete fracture, your bone doesn't break completely. In other words, it cracks without breaking all the way through.

<b>Hairline fracture</b>	bone is broken in a thin crack
<b>Greenstick fracture</b>	bone is broken on one side, while the other side is bent
<b>Buckle or torus fracture</b>	bone is broken on one side and a bump or raised buckle develops on the other side

#### Complete Fracture

In a Complete fracture, your bone breaks completely. It's snapped or crushed into two or more pieces.

<b>Single fracture</b>	bone is broken in one place into two pieces
<b>Comminuted fracture</b>	bone is broken or crushed into three or more pieces
<b>Compression fracture</b>	bone collapses under pressure
<b>Non-displaced fracture</b>	bone breaks into pieces that stay in their normal alignment
<b>Displaced fracture</b>	bone breaks into pieces that move out of their normal alignment
<b>Segmental fracture</b>	bone is broken in two places in a way that leaves at least one segment floating and unattached
<b>Incomplete fractures</b>	are more common in children. Their bones are softer than those of adults. As a result, they're more likely to bend than break. Complete fractures can happen at any age.



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## Treatment

If you're diagnosed with a fracture, the treatment plan will depend on its type and location.

- In general, your doctor will try to put the broken bone pieces back into their proper positions and stabilize them as they heal. It's important to keep pieces of broken bone immobile until they're mended. During the healing process, new bone will form around the edges of the broken pieces. If they're properly aligned and stabilized, the new bone will eventually connect the pieces.
- Your doctor may use a cast to stabilize your broken bone. Your cast will likely be made from plaster or fiberglass. It will help keep the injured area stabilized and prevent broken bone pieces from moving while they heal.
- In rare cases, you may need traction to stabilize the injured area. Traction stretches the muscles and tendons around your bone. Your doctor will administer it using a system of pulleys and weights positioned in a metal frame over your bed. This system will produce a gentle pulling motion that your doctor can use to stabilize the injured area.
- For more complex or compound fractures, you may need surgery. Your doctor may use open reduction, and internal fixation or external fixation to keep your bones from moving.
- In open reduction and internal fixation, your doctor will first reposition or "reduce" the pieces of broken bone into their normal alignment. Then they will connect or "fix" the broken bone. This occurs by using screws, metal plates, or both. In some cases, your doctor may insert rods through the center of your bone.
- In external fixation, your doctor will put pins or screws into your bone above and below the fracture site. They will connect these pins or screws to a metal stabilizing bar positioned on the outside of your skin. The bar will hold your bone in place as it heals.
- Your doctor may also prescribe medication to control pain, fight infection, or manage other symptoms or complications. After the initial treatment stages, they may recommend physical therapy or other strategies to help you regain normal use.

### Q.4. How to patient transfer from bed to stretcher.

#### Patient Transfer from Bed to Stretcher

A bed to stretcher transfer requires a minimum of three to four people, depending on the size of the patient and the size and strength of the health care providers. Patients who require this type of transfer are generally immobile or acutely ill and may be unable to assist with the transfer.

Step	Content	Additional Information
1	<ul style="list-style-type: none"><li>• Always predetermine the number of staff required to safely transfer a patient horizontally.</li><li>• Three to four health care providers are required for the transfer.</li></ul>	



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- Explain what will happen and how the patient can help (tuck chin in, keep hands on chest).
- Collect supplies.
- This step provides the patient with an opportunity to ask questions and help with the transfer.

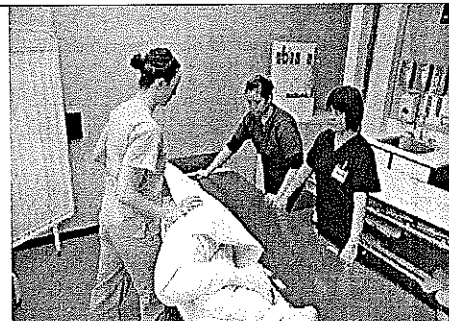


3

- Raise bed to safe working height. Lower head of bed and side rails.
- Position the patient closest to the side of the bed where the stretcher will be placed.
- Safe working height is at waist level for the shortest health care provider.
- The patient must be positioned correctly prior to the transfer to avoid straining and reaching.
- May need additional health care providers to move patient to the side of the bed.


4

- Roll patient over and place slider board halfway under the patient, forming a bridge between the bed and the stretcher.
- Place sheet on top of the slider board. The sheet is used to slide patient over to the stretcher.
- The patient is returned to the supine position.






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	<ul style="list-style-type: none"><li>• Patient's feet are positioned on the slider board.</li><li>• The slider board must be positioned as a bridge between both surfaces.</li><li>• The sheet must be between the patient and the slider board to decrease friction between patient and board.</li><li>• Ensure all tubes and attachments are out of the way.</li></ul>	
5	<ul style="list-style-type: none"><li>• Position stretcher beside the bed on the side closest to the patient, with stretcher slightly lower.</li><li>• Apply brakes.</li><li>• Two health care providers climb onto the stretcher and grasp the sheet.</li><li>• The lead person is at the head of the bed and will grasp the pillow and sheet.</li><li>• The other health care provider is positioned on the far side of the bed, between the chest and hips of the patient, and will grasp the sheet with palms facing up.</li><li>• The two caregivers on the stretcher grasp the draw sheet using a palm up technique, sitting up tall, and keeping their elbows close to their body and backs straight.</li><li>• The position of the health care providers keeps the heaviest part of the patient near the health care providers' centre of gravity for stability.</li></ul>	
6	<ul style="list-style-type: none"><li>• The caregiver on the other side of the bed places his or her hands under the patient's hip</li></ul>	



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

	and cover the patient with sheets.	
11	<ul style="list-style-type: none"><li>• Lower bed and lock brakes, raise side rails as required, and ensure call bell is within reach.</li><li>• Perform hand hygiene.</li><li>• Placing bed and side rails in a safe position reduces the likelihood of injury to patient.</li><li>• Proper placement of call bell facilitates patient's ability to ask for assistance.</li><li>• Hand hygiene reduces the spread of microorganisms.</li></ul>	

*K. Kauri*





**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1305**

**Time: 2 Hours**

**Course Name: Mobilization & Movement**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. A contracture is a ..... of tissue, affecting movement:**

- |                |                |
|----------------|----------------|
| a) Shorting    | b) Lengthening |
| c) Decomposing | d) Build up    |

**Q.2. Incomplete fracture where one side of the bone breaks and the other side bends; occurs only in children.**

- |                         |                     |
|-------------------------|---------------------|
| a) Impact fracture      | b) Close fracture   |
| c) Green stick fracture | d) colle's fracture |

**Q.3. The radius is located:**

- |   |                                       |
|---|---------------------------------------|
| a) In the upper part of the arm               | b) On the thumb side of the lower arm |
| c) On the little finger side of the lower arm | d) At the shoulder arm                |

**Q.4. A fracture in which the broken end of the bone comes out through the skin is known as:**

- |             |                 |
|-------------|-----------------|
| a) Simple   | b) Communicated |
| c) Compound | d) Impacted     |

**Q.5. While lifting a patient, a nurse bends on her:**

- |                   |                   |
|-------------------|-------------------|
| a) Hips and back  | b) Hips and knees |
| c) Back and knees | d) Back only      |

**Q.6. A contracture can be treated with the following:**

- |                                    |                                    |
|------------------------------------|------------------------------------|
| a) Use active and passive movement | b) Apply skin or skeletal traction |
| c) Apply serial corrective caste   | d) Release soft tissue surgically  |

**Q.7. Main cause of fracture into female after menopause:**

- |                      |                 |
|----------------------|-----------------|
| a) Hormone imbalance | b) Osteoporosis |
| c) Both a and b      | d) Complicated  |

**Q.8. When a large bone is affected, such as the pelvis or femur:**

- |  |                  |
|--|------------------|
| a) The suffer may look pale and clammy | b) Feeling faint |
| c) feeling with nausea                 | d) All of above  |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Incomplete fracture is:

- a) Bone is broken in a thin crack
- b) Bone is broken on one side, while the other side is bent
- c) Bone collapses under pressure
- d) Bone is broken on one side and a bump or raised buckle develops on the other side

Q.10. The symptoms associated with the type of fracture would probably be:

- a) Shock, pain and adduction with hip and knee
- b) Pain, external rotation and lengthening of the extremity
- c) Pain, external rotation and shortening of the extremity
- d) Shock, internal rotation and shortening of the extremity

### Section – B

04X04 = 16 Marks

- Q.1. Difference between the close fracture and open fracture.
- Q.2. What are the safety consideration during ambulating a patient?
- Q.3. Difference between the tendon and ligament.
- Q.4. Draw the flow chart of Morse fall scale.

### Section – C

04X06 = 24 Marks

- Q.1. Define fall. Describe the Extrinsic factors of fall.
- Q.2. What do you mean contracture? Write down the four risk factors and general rules for poisoning contracture patient.
- Q.3. Define immobility. Describe the level of assistance.
- Q.4. Define fall prevention. Explain the fall prevention strategies.

K. Kowri



**School of Health Care and Paramedics Skills**

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# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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- c) Pain, external rotation and shortening of the extremity**
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## Section – B

04X04 = 16 Marks

Q.1. Difference between the close fracture and open fracture.

### 1.1.1 Closed vs. open

A closed fracture is also called a simple fracture. In a closed fracture, the broken bone doesn't break your skin. An open fracture is also called a compound fracture. In an open fracture, the ends of the broken bone tear your skin. When your bone and other internal tissues are exposed, it puts you at higher risk of infection

Q.2. What are the safety consideration during ambulating a patient?

### 1.2 Ambulating a Patient

Ambulation is defined as moving a patient from one place to another. Once a patient is assessed as safe to ambulate, determine if assistance from additional health care providers or assistive devices is required.

**Always review and follow your hospital policy regarding this specific skill.**

### Safety considerations

- Perform hand hygiene.
- Check room for additional precautions.
- Introduce yourself to patient.
- Confirm patient ID using two patient identifiers (e.g., name and date of birth).
- Listen and attend to patient signs.
- Ensure patient's privacy and dignity.
- Assess ABCCS (airway, breathing, circulation, consciousness, safety).
- Ensure tubes and attachments are properly placed prior to the procedure to prevent accidental removal.
- Bring in required assistive devices and proper footwear.

Q.3. Difference between the tendon and ligament.



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## Tendons, Joints, Ligaments

A tendon is a tough, flexible band made of fibrous connective tissue, and functions to connect muscle to bone. Joints are the bone articulations allowing movement. A ligament is a dense, white band of fibrous elastic tissue.

Ligaments connect the ends of bones together in order to form a joint. These help to limit joint dislocation and restrict improper hyperextension and hyper flexion.

Q.4. Draw the flow chart of Morse fall scale.

### 2 Morse Fall Scale

The Morse Fall Scale (MFS) is a rapid and simple method of assessing a patient's likelihood of falling. A large majority of nurses (82.9%) rate the scale as "quick and easy to use," and 54% estimated that it took less than 3 minutes to rate a patient. It consists of six variables that are quick and easy to score, and it has been shown to have predictive validity and interrater reliability. The MFS is used widely in acute care settings, both in the hospital and long term care inpatient settings.

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5. Gait/Transferring Normal/bedrest/immobile Weak <sup>(SEP)</sup> Impaired	0 10 20	
6. Mental status <sup>(SEP)</sup> Oriented to own ability Forgets limitations	0 15	

### Section – C

04X06 = 24 Marks

Q.1. Define fall. Describe the Extrinsic factors of fall.

### 3 Fall

The body's capacity for locomotion (a purposeful change in the position and posture of the body in space) under constantly disturbing environmental influences is the result of a functioning postural system. Locomotion means walking or running as well as acrobatic gymnastics exercises. "A fall is an event where the person inadvertently lands on the ground or at another lower level" (WHO, 2007).

Phase 1 (Initial Event)	The person's footprint shifts and the balance shifts while walking (e.g., muscle weakness and / or surrounding cables).
Phase 2 (loss of balance)	The upright posture can no longer be compensated by correcting the balance (e.g. neurological disorders).
Phase 3 (Impact Phase)	Upon impact of the falling person on the ground, the impact forces are transmitted to the body - injury is possible.



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## Extrinsic Factors (External Causes)

A human's environment carries many dangers known as causes of falls. Unsuitable footwear, poor lighting, obstacles such as cables, slippery carpets and smooth floors (eg tiles, linoleum) are just a few examples. With the learning of crawling and running especially toddlers are endangered by falls. In particular, if baby walkers are used, z. Door sills and edges of the carpet. Dangerous moments. Children can fall out of cots or high beds, fall over with high chairs, fall off balconies or windows.

### 3.2 Aids

Defective, worn or unsuitable aids (wheelchair, cane), brakes that are not locked, missing handles in bathrooms and corridors are other aspects that must be considered as a matter of fall. Other physical environmental factors include inflow and outflow systems (e.g., infusion, drains) and other mechanical aids (e.g., splints). They can restrict the movement of the affected person and thus represent stumbling blocks.

### 3.3 Fixing measures / bed rail.

Although restraints and bed rails are designed to protect adults from falling, they are a potential cause of falls. Toddlers with lowered bed rails can fall out of bed at unattended moments.

### 3.4 Behavioral and situational causes

In infants, it is not uncommon for the carelessness of caregivers, e.g. leads to a fall from the changing table in an unobserved moment. In addition, children are not able to recognize dangerous situations or to assess dangers and their consequences. The cognitive structures are not yet adequately developed (see intrinsic factors). Childish curiosity and not estimating or not recognizing dangers is a dangerous combination that leads to fall accidents. Everyday activities such, for example, opening a tall cabinet door, raising or leaning forward to reach objects are possible causes of falls. All transfers, e.g. Chair, wheelchair, bed and toilet transfers can lead to a fall. Every change to a new environment harbors dangers that can be the cause of a fall. Especially the first week after a hospitalization is considered risky.

Q.2. What do you mean contracture? Write down the four risk factors and general rules for poisoning contracture patient.

## 4 Contractures

A functional posture and movement device makes it possible to keep upright, to move quickly and to differentiate with the upper extremity. Without thinking about it, people overcome obstacles in their daily lives. For example, high entry points on the bus, reach objects in the upper compartments of a shelf and bend down to pick something off the floor. Many people experience restricted mobility (contractures) in the course of life due to a variety of causes. These can take on such proportions that those affected depend on help from caregivers.

### 4.1 Definition

Contracture (lat. Contrahere = contracting) becomes a persistent joint stiffness or one more or less strong

marked loss of physiological mobility of a joint. It should not be confused with the term "contraction" (physiological contraction of a muscle)! A contracture can occur on all joints of the human body. Arm, leg, but also vertebral joints and pelvic and shoulder girdles can be affected. A contracture can either be severe, resulting in e.g. a knee joint from rigid extension position does not let bend, or only hinted at, so, for example, in an elbow joint only a few angular degrees are missing for full extension.

### 4.2 Risk factors

Risk factors with regard to the development of contractures are:

- Diseases of the joints (e.g., joint inflammation and injury or degenerative gene changes),



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Disorders of the soft tissue apparatus (muscular diseases, injuries and tendon or muscle shortening, shrinkage of capsules and ligaments),

- Diseases of the nervous system (apoplexia cerebria, multiple sclerosis, Parkinson's disease),
- Illnesses associated with the occurrence of paralysis,
- mental illnesses (depression and dementia changes, often leading to inactivity and / or depression of drive and consequent lack of exercise),
- immobilisation (for example by rail storage or gypsum treatment),
- Miscarriage due to pain,
- Bed rest (for example, in a reduced general condition), positioning of the patient on a soft bed for decubitus prophylaxis,
- Sedation, exsiccosis.

## 4.3 Positioning of the patient

Selective positioning of the patient as such does not prevent movement restrictions, since the gliding ability of the articulated parts is not promoted, not all directions of movement of the individual joints are considered and not all joint positions can be finally caused. Nevertheless, certain positioning of the patient when consistently performed can prevent difficult reversible misalignments. There are various positioning options that are ideally used alternately.

## 5 General rules for positioning

Care should be taken in each position to avoid pressure on superficial nerve areas as flaccid paralysis may develop in the compressed nerve supply area:

- Wounds should not be subject to heavy drag due to significant angular changes in the adjacent or underlying joint. The healing process would be disturbed and prolonged.
- Patients with spastic paralysis require a position in tonus-regulating joint positions. Limb palsy areas should be carefully positioned to avoid damaging stretching or overstretching.
- The positioning can be done in the back, side or prone position. It should, if this is possible in the context of decubitus prophylaxis possible on as hard as possible mattress.

Q.3. Define immobility. Describe the level of assistance.

### 5.1 Immobilization

#### Immobility and Assisting Patients

When patients are recovering from illness, they may require assistance to move around in bed, to transfer from bed to wheelchair, or to ambulate. Changing patient positions in bed and mobilization are also vital to prevent contractures from immobility, maintain muscle strength, prevent pressure ulcers, and help body systems function properly for best health and healing. The amount of assistance each patient will require depends on the patient's previous health status, age, type of illness, and length of stay.

### 5.2 Types of Assistance

At times, patients are assessed and given a "level of assistance" required for transferring. This is most common in residential care settings. The level of assistance is based on the patient's ability to transfer and stand. The terms describing different levels of assistance are used by health care providers to communicate with each other so everyone understands what type of assistance is required. The assistance needed is usually charted on the patient's file, above the head of the bed, and/or on the patient's chart. Below describe different types of assistance in the hospital and community setting.

Level of Assistance	Description
Independent	The patient can transfer independently and safely.



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<b>Standby supervision</b>	The patient requires no physical assistance but may require verbal reminder. This type of patient may also be learning to transfer independently using a wheelchair, walker, or cane.
<b>Minimal assist</b>	The patient is cooperative but needs minimal physical assistance with the transfer.
<b>One-person standing pivot</b>	<ul style="list-style-type: none"><li>• The patient can bear weight on one or both legs and is cooperative and predictable.</li><li>• The patient also can sit with minimal support on the side of the bed.</li></ul>
<b>wo-person standing pivot</b>	<ul style="list-style-type: none"><li>• The patient can assist with weight bearing, but may be inconsistent.</li><li>• The patient is cooperative and predictable.</li></ul>
<b>One-person assist with transfer board</b>	<ul style="list-style-type: none"><li>• The patient is cooperative, follows directions, and has good trunk control.</li><li>• The patient can use their arms, but cannot bear weight on both legs.</li></ul>
<b>Two-person assist with transfer board</b>	<ul style="list-style-type: none"><li>• The patient is cooperative and can follow directions.</li><li>• The patient can use their arms, but cannot bear weight on both legs. The patient does not have good trunk control.</li><li>• The patient's wheelchair has removable arms.</li></ul>
<b>Mechanical stand</b>	<ul style="list-style-type: none"><li>• The patient may have some ability to stand, but is unreliable.</li><li>• The patient may be unpredictable (due to cognitive changes, medications).</li><li>• The patient is a heavy two-person transfer and requires toileting or perineal care.</li><li>• The patient does not have severe limb contractures or injuries where movement is medically contraindicated (e.g., spinal injury).</li><li>• Use of a mechanical lift.</li></ul>

Q.4. Define fall prevention. Explain the fall prevention strategies.

### 6 Fall Prevention

Patient falls are the most reported patient safety events. Falls are a major priority in health care, and health care providers are responsible for identifying, managing, and eliminating potential hazards to patients. All patient-handling activities (positioning, transfers, and ambulation) pose a risk to patients and health care providers. Older adults may be at increased risk for falls due to impaired mental status, decreased strength, impaired balance and mobility, and decreased sensory perception. Other patients may be at risk due to gait problems, cognitive ability, visual problems, urinary frequency, generalized weakness, and cognitive dysfunction. Specific treatments and medications may cause hypotension or drowsiness, which increase a patient's risk for falls.

#### 6.1 Fall Prevention Strategies

All clients should be assessed for risk factors, and necessary prevention measures should be implemented as per agency policy. In this table lists factors that affect patient safety and general measures to prevent falls in health care. Prior to ambulation consider the following risk factors:

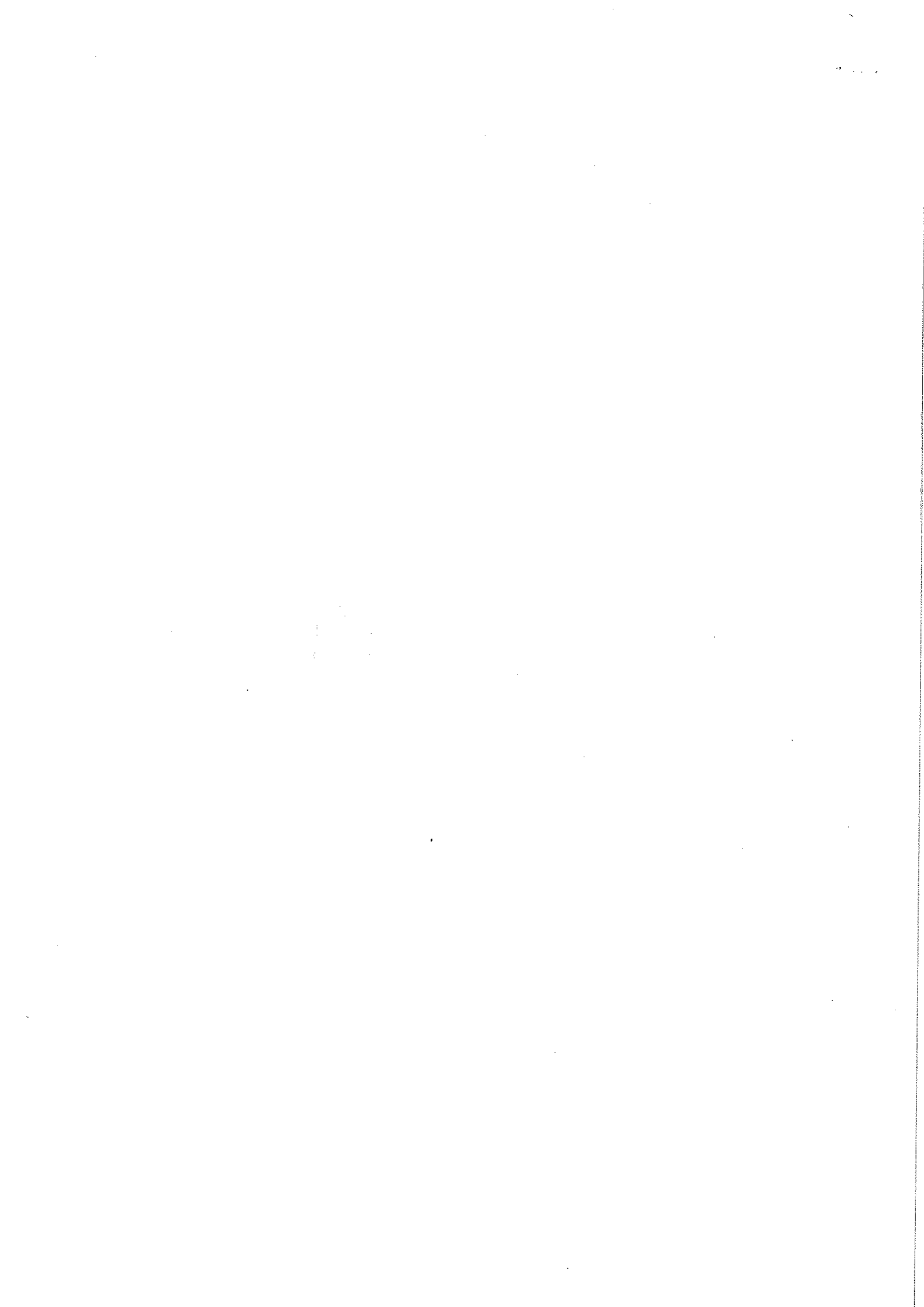
- Age (elderly)
- Sensory-perception alteration
- Cognitive impairment (decreased LOC, confusion)
- Poly-pharmacology
- Urinary incontinence
- Ability to communicate (language barriers)
- Lack of safety awareness (height of bed, attachments and tubes)
- Environmental factors (dim light, tripping hazards, uneven floors)



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Prevention Strategies	Safety Measures
Look for fall risk factors in all patients.	Identifying specific factors helps you implement specific preventive measures. Risk factors include age, weakness on one side, the use of a cane or walker, history of dizziness or light-headedness, low blood pressure, and weakness.
Follow hospital guidelines for transfers.	Transfer guidelines provide a good baseline for further patient risk assessments.
Orient patient to surroundings.	Orient patients to bed, surroundings, location of bathroom and call bell, and tripping hazards in the surrounding environment.
Answer call bells promptly.	Long wait times may encourage unstable patients to ambulate independently.
Ensure basic elimination and personal needs are met.	Provide opportunities for patients to use the bathroom and to ask for water, pain medication, or a blanket.
Ensure patient has proper footwear and mobility aids.	Proper footwear prevents slips.
Communicate with your patients.	Let patients know when you will be back, and how you will help them ambulate
Keep bed in the lowest position for sedated, unconscious, or compromised patients.	This step prevents injury to patients.
Avoid using side rails when a patient is confused.	Side rails may create a barrier that can be easily climbed and create a fall risk situation for confused patients.
Keep assistive devices and other commonly used items close by.	Allow patients to access assistive devices quickly and safely. Items such as the call bell, water, and Kleenex should be kept close by, to avoid any excessive reaching.

K. Kauri





**School of Health Care and Paramedics**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1306**

**Time: 2 Hours**

**Course Name: Cardiology & Neurology**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

**10X01 = 10 Marks**

**Q.1. The innermost layer of the heart is:**

- |               |                |
|---------------|----------------|
| A) Epicardium | b) Endocardium |
| c) Myocardium | D) Pericardium |

**Q.2. which portion of the heart receives oxygenated blood:**

- |                   |                    |
|-------------------|--------------------|
| a) Left atrium    | b) Right atrium    |
| c) Left ventricle | d) Right ventricle |

**Q.3. Tricuspid valve is located between:**

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| a) Right atrium and right ventricle | b) Left atrium and left ventricle |
| C) Left ventricle and aorta         | d) Left and right ventricle       |

**Q.4. The natural pacemaker of heart is:**

- |                    |                  |
|--------------------|------------------|
| a) Av node         | b) SA node       |
| c) Purkinje fibers | D) Bundle of his |

**Q.5. Electrocardiogram is:**

- |                                     |                                |
|-------------------------------------|--------------------------------|
| a) Recording of brain wave activity | b) Recording of heart activity |
| c) Recording of peristalsis         | d) None of the above           |

**Q.6. The artery which supply to head and neck is:**

- |                      |                        |
|----------------------|------------------------|
| a) coronary artery   | b) carotid artery      |
| c) mesenteric artery | d) intercoastal artery |

**Q.7. The largest artery of human body is:**

- |                      |                     |
|----------------------|---------------------|
| a) Aorta             | b) Carotid artery   |
| c) Subclavian artery | d) Pulmonary artery |

**Q.8. The most appropriate diet for a patient newly diagnosed with myocardial infarction is:**

- |                                   |                         |
|-----------------------------------|-------------------------|
| a) Low sodium and low cholesterol | b) Clear liquid         |
| c) Nothing by mouth               | d) General as tolerated |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Heart sounds are the result of:

- a) Blood flow through the heart
- b) Movement of blood
- c) Contraction in the heart muscles
- d) Closure of the heart valves

Q.10. The SA node is situated in:

- a) Left atrium
- b) Right ventricle
- c) Left ventricle
- d) Right atrium

### Section – B

04X04 = 16 Marks

- Q.1. Define angina pectoris. Enlist its pattern and signs and symptoms.
- Q.2. Define myocardial infarction. Mention its diagnosis and sign and symptoms.
- Q.3. Define heart failure & explain its management in detail?
- Q.4. Explain in detail regarding cardiogenic shock

### Section – C

04X06 = 24 Marks

- Q.1. Draw a well labelled diagram of brain and elaborate function of its different parts.
- Q.2. Draw a well labelled diagram of neuron and elaborate function of its different parts.
- Q.3. Explain cerebrospinal fluid.
- Q.4. Write a detailed note on cranial nerves and mention at least 6 cranial nerves with its name type and function.



School of Health Care and Paramedics Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, 3<sup>rd</sup> Semester,

End-Sem. Examination

Course Code: SHP1306

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Course Name: Cardiology & Neurology

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10X01 = 10 Marks

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- c) Myocardium
- D) Pericardium

Q.2. which portion of the heart receives oxygenated blood:

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- b) Right atrium
- c) Left ventricle
- d) Right ventricle

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- b) Left atrium and left ventricle
- C) Left ventricle and aorta
- d) Left and right ventricle

Q.4. The natural pacemaker of heart is:

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- d) General as tolerated



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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- a) Left atrium
- b) Right ventricle
- c) Left ventricle
- d) Right atrium

### Section – B

04X04 = 16 Marks

Q.1. Define angina pectoris. Enlist its pattern and signs and symptoms.

#### Angina Pectoris

Angina is chest pain resulting from myocardial ischemia caused by inadequate myocardial blood and oxygen supply. Angina is caused by an imbalance between oxygen supply and demand. Causes include obstruction of coronary blood flow resulting from atherosclerosis, coronary artery spasm, or conditions increasing myocardial oxygen consumption.

#### Pattern of angina pectoris Stable angina

Also called exertional angina. Occurs with activities that involve exertion or emotional stress, relieved with rest or nitroglycerin. Usually has stable pattern of onset, duration, severity, and relieving factors.

#### Unstable angina

Also called preinfarction angina. Occurs with an unpredictable degree of exertion or emotion and increases in occurrence, duration, and severity over time. Pain may not be relieved with nitroglycerin.

#### Variant angina

Angina called vasospastic angina. Result from coronary artery spasm. May occur at rest. Attacks may be associated with ST segment elevation noted on the electrocardiogram

Intractable angina is a chronic, incapacitating angina unresponsive to interventions.

#### Preinfarction angina

- Associated with acute coronary insufficiency
- Lasts longer than 15 minutes
- Symptom of worsening cardiac ischemia
- Occurs after an MI, when residual ischemia may cause episodes of angina

#### Signs and Symptoms

- Pain
  - Pain can develop slowly or quickly
  - pain usually is described as mild or moderate
  - Substernal, crushing squeezing pain may occur
  - pain may radiate to the shoulders, arms, jaw, neck or back.
  - pain intensity is unaffected by inspiration and expiration
  - pain usually less than 5 minutes, however, pain can last up to 15 to 20 minutes
  - Pain is relieved by nitroglycerin or rest

- Dyspnea
- Pallor
- Sweating
- Palpitation and tachycardia
- Dizziness and faintness
- Hypertension
- Diagnosis disturbances

**Q.2. Define myocardial infarction. Mention its diagnosis and sign and symptoms.**

### **Myocardial Infarction**

Myocardial infarction occurs when myocardial tissue is abruptly and severely deprived of oxygen. Ischemia can lead to necrosis of myocardial tissue if blood flow is not restored. Infarction does not occur instantly but evolves over several hours. Obvious physical changes do not occur in the heart until 6 hours after the infarction when the infarcted area appears blue and swollen. 8 to 10 days after infarction, granulation tissue forms. Over 2 to 3 months, the necrotic area develops into a scar tissue permanently changes the size and shape of the entire left ventricle.

### **Diagnosis**

- Troponin level
- Total creatine kinase levels
- CK-MB isoenzyme
- Myoglobin
- LDH Level
- ECG
- Blood test

### **Sign and Symptom**

- Pain
  - Client may experience crushing substernal pain
  - Pain may radiate to the jaw, back, and left arm
  - Pain may occur without cause, primarily early in the morning
  - Pain is unrelieved by rest or nitroglycerin and is relieved only by opioids
  - Pain lasts 30 minutes or longer
- Nausea and vomiting
- Diaphoresis
- Dyspnea
- Dysrhythmias
- Feelings of fear and anxiety
- Pallor, Cyanosis, coolness of extremities

### Q.3. Define heart failure & explain its management in detail?

#### Heart Failure

Inability of heart to pump adequate blood to meet the metabolic need of the body at the rest or during exercise. Cardiac output is decreased and all body tissue not supplied adequately.

#### Management

- Provide high fowlers or orthopneic position to reduce pulmonary congestion, cardiac workload (de- crease blood return from lower extremities)
- Administration O<sub>2</sub> at high concentration
- administration inotropic medication e.g.- dopamine, digoxin, dobutamine
- Analyze ABG result for electrolyte imbalance potassium because hyperkalemia can cause digitalis toxicity
- restrict fluid intake to reduce over load to heart
- Administration digitalis glycoside to increase cardiac output and decrease HR (Bradycardia)
- Never give digoxin if heart rate below 60 beat /minute
- Adverse effect of digoxin include anorexia, nausea, vomiting, arterioventricular heart blocks, confusion, dizziness neurological depression and decrease heart rate by slowing conduction

### Q.4. Explain in detail regarding cardiogenic shock

#### Cardiogenic Shock

Cardiogenic shock is failure of the heart to pump adequately, thereby reducing cardiac output and compromising tissue perfusion. Necrosis of more than 40% of the left ventricle occurs, usually as a result of occlusion of major coronary vessels. The goal of treatment is to maintain tissue oxygenation and perfusion and improve the pumping ability of the heart.

#### Signs and symptoms

- Hypotension
- Urine output lower than 30ml/hr
- Poor peripheral pulses
- Tachycardia
- Pulmonary congestion
- Tachypnea
- Disorientation restlessness and confusion
- Continuing chest discomfort

#### Intervention

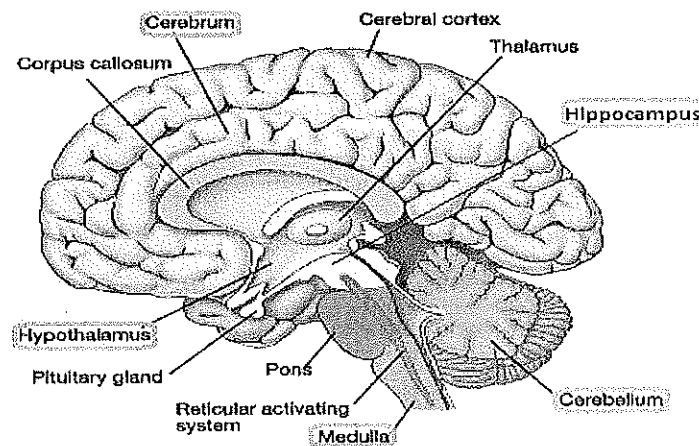
- Administration morphine sulfate intravenously as prescribed to decrease pulmonary congestion and relieve pain
- administer oxygen as prescribed
- prepare for intubation and mechanical ventilation
- Administer diuretics and nitrate as prescribe while monitoring the BP constantly

- administer vasopressors and positive inotropics as prescribed to maintain oxygen perfusion
- prepare the client for insertion of an intraaortic balloon pump prescribe to improve coronary artery perfusion and improve cardiac output.
- prepare the client for immediate reperfusion procedures such as PTCA or coronary artery bypass graft
- monitor arterial blood gas levels and prepare to treat imbalance
- monitor intake and output
- assist with the insertion of a pulmonary artery (Swan-Ganz) catheter to assess degree of heart failure, reading obtained from the catheter correlating to cardiogenic shock include an increased pulmonary capillary wedge pressure and a decrease cardiac catheter.

### Section – C

04X06 = 24 Marks

Q.1. Draw a well labelled diagram of brain and elaborate function of its different parts.



#### Cerebrum

This is the largest part of the brain and it occupies the anterior and middle cranial fossae. For descriptive purposes each hemisphere of the cerebrum is divided in to lobes:

- Frontal
- Temporal
- Parietal
- Occipital

#### Thalamus

This consists of two masses of grey and white matter situated within the cerebral hemispheres just below the corpus callosum. Sensory receptors in the skin and viscera send information about touch, pain and temperature, and input from the special sense organs travels to the thalamus.

## Hypothalamus

The hypothalamus is a small but important structure which weighs around 7 g. the hypothalamus controls the output of hormones from both lobes of the pituitary.

## Midbrain

The midbrain is the area of the brain situated around the cerebral aqueduct between the cerebrum above and the pons below

## Pons

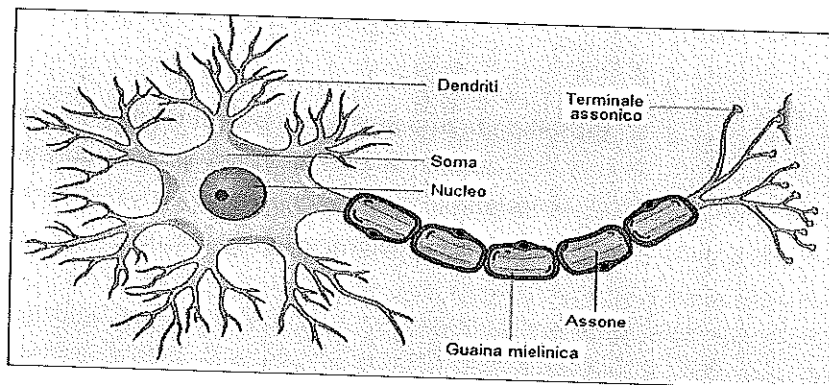
The pons is situated in front of the cerebellum, below the midbrain and above the medulla oblongata. It consists mainly of nerve fibres (white matter)

## Medulla oblongata

The medulla oblongata, or simply the medulla, extends from the pons above and is continuous with the spinal cord below. It is about 2.5 cm long and it lies just within the cranium above the foramen magnum. The vital centres, consisting of groups of cell bodies (nuclei) associated with autonomic reflex activity, lie in its deeper structure. These are the:

- Cardiovascular centre
- Respiratory centre
- Reflex centres of vomiting, coughing, sneezing and swallowing.
- The medulla oblongata has several special features.

Q.2. Draw a well labelled diagram of neuron and elaborate function of its different parts.



## Neurones

Each neurone consists of a cell body and its processes, one axon and many dendrites. Neurones are commonly referred to as nerve cells. Bundles of axons bound together are called nerves. Neurones cannot divide, and for survival they need a continuous supply of oxygen and glucose. Unlike many other cells, neurones can synthesise chemical energy (ATP) only from glucose.

## Nerve impulses can be initiated in response to stimuli from

- Outside the body, e.g. touch, light waves
- Inside the body, e.g. a change in the concentration of carbon dioxide in the blood alters respiration; a thought may result in voluntary movement.

### **Cell bodies**

Nerve cells vary considerably in size and shape but they are all too small to be seen by the naked eye. Cell bodies form the grey matter of the nervous system and are found at the periphery of the brain and in the centre of the spinal cord.

### **Axons and dendrites**

Axons and dendrites are extensions of cell bodies and form the white matter of the nervous system. Axons are found deep in the brain

### **Axons**

Each nerve cell has only one axon, which begins at a tapered area of the cell body.

### **Q.3. Explain cerebrospinal fluid.**

#### **Cerebrospinal fluid (CSF)**

Cerebrospinal fluid is secreted into each ventricle of the brain by choroid plexuses. CSF pressure is higher than venous pressure, CSF is secreted continuously at a rate of about 0.5 ml per minute, i.e. 720 ml per day. The volume remains fairly constant at about 150 ml. CSF pressure may be measured using a vertical tube attached to a lumbar puncture needle inserted into the subarachnoid space above or below the 4th lumbar vertebra (which is below the end of the spinal cord).

CSF consisting of:

- Water
- Mineral salts
- Glucose
- Plasma proteins: small amounts of albumin and globulin
- A few leukocytes.

#### **Functions of cerebrospinal fluid**

- CSF supports and protects the brain and spinal cord by maintaining a uniform pressure around these vital structures and acting as a cushion or shock absorber between the brain and the skull.
- It keeps the brain and spinal cord moist and there may be exchange of nutrients and waste products between CSF and nerve cells.

### **Q.4. Write a detailed note on cranial nerves and mention at least 6 cranial nerves with its name type and function.**

#### **Cranial nerve**

There are 12 pairs of cranial nerves originating from nuclei in the inferior surface of the brain, some sensory, some motor and some mixed. Their names generally suggest their distribution or function and they are numbered using Roman numerals according to the order they connect to the brain, starting anteriorly. They are:

s.no.	Name of Nerves	Types of nerves	Function
I.	Olfactory	sensory	These are the nerve sense of smell
II	Optic	sensory	These are the nerve of the sense of light
III	Oculomotor	motor	These nerves arise from nuclei near the cerebral aqueduct. They supply: Four of the six extrinsic muscles, which move the eyeball
IV	Trochlear	motor	Eye movement
V	Trigeminal	mixed	These nerves contain motor and sensory fibres and are among the largest of the cranial nerves Receiving Impulses of pain and chewing
VI	Abducent	motor	the eyeballs causing abduction
VII	Facial	mixed	These nerves are composed of both motor and sensory nerve fibres Facial expression and taste
VIII	Vestibulocochlear (auditory)	sensory	Balance and hearing
IX	Glossopharyngeal	mixed	Both sensory and motor Secretion of the saliva, swallowing and taste
X	Vagus: mixed		Secretion of the gland and sensory fibres convey impulses from the membranes.
XI	Accessory: motor		Turning the hand lifting the shoulder
XII	Hypoglossal: motor.		Contribute to swallowing and speech

K. Kow



**School of Health Care and Paramedics Skills**

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**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1306**

**Time: 2 Hours**

**Course Name: Cardiology & Neurology**

**Max. Marks: 50**

**Instruction:**

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**Section – A**

10X01 = 10 Marks

**Q.1. Bicuspid valve is located between:**

- |                               |                                   |
|-------------------------------|-----------------------------------|
| a) Right atrium and ventricle | b) Left atrium and left ventricle |
| c) Left ventricle and aorta   | d) Left and right ventricle       |

**Q.2. The only vein which supplies oxygenated blood?**

- |                     |                 |
|---------------------|-----------------|
| a) Pulmonary vein   | b) Hepatic vein |
| c) Pulmonary artery | d) Renal vein   |

**Q.3. Temperature regulating centre is present in which part of the brain?**

- |                      |                 |
|----------------------|-----------------|
| a) Thalamus          | b) Hypothalamus |
| c) Medulla oblongata | d) Cerebellum   |

**Q.4. Total pair of cranial nerve are:**

- |       |        |
|-------|--------|
| a) 12 | b) 122 |
| c) 24 | d) 20  |

**Q.5. The outermost layer of the heart:**

- |                |                |
|----------------|----------------|
| a) Endocardium | b) Epicardium  |
| c) Myocardium  | d) Pericardium |

**Q.6. Which valve prevents backflow of blood into the left atrium?**

- |                    |                    |
|--------------------|--------------------|
| a) Aortic valve    | b) Pulmonary valve |
| c) Tricuspid valve | d) Mitral valve    |

**Q.7. The 10<sup>th</sup> cranial nerve is:**

- |             |                |
|-------------|----------------|
| a) Abducent | b) Vagus       |
| c) Facial   | d) Hypoglossal |

**Q.8. Kernig's sign is a striking feature of:**

- |               |              |
|---------------|--------------|
| a) Meningitis | b) Nephritis |
| c) Neuritis   | d) Dendritis |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Broca's area controls:

- |            |                   |
|------------|-------------------|
| a) Sensory | b) Speech         |
| c) Emotion | d) Motor function |

Q.10. The number of thoracic spinal nerve:

- |            |            |
|------------|------------|
| a) 11 Pair | b) 12 Pair |
| c) 24 Pair | d) 22 Pair |

### Section – B

04X04 = 16 Marks

- Q.1. Draw the flow chart of blood circulation.
- Q.2. Difference between the arteries and capillaries.
- Q.3. Define thrombosis. Write down the predisposing factors of thrombosis.
- Q.4. Define Epilepsy. Describe the types of epilepsy.

### Section – C

04X06 = 24 Marks

- Q.1. Describe the RBC, WBC, and platelets.
- Q.2. Define coronary heart disease. Write down the four causes, symptom, and intervention of Coronary heart disease.
- Q.3. What do you mean meningitis? Explain the pathophysiology, Positive Kernig's sign and Positive Brudzinski's sign.
- Q.4. Draw the Glasgow comma scale.

*K. Kour*



**School of Health Care and Paramedics Skills**

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## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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Q.10. The number of thoracic spinal nerve:

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- c) 24 Pair
- d) 22 Pair

### Section – B

04X04 = 16 Marks

Q.1. Draw the flow chart of blood circulation.

#### Flow of Blood

The heart is made up of large muscles that cause the contraction and relaxation of the heart, and when these muscles take turns contracting, blood is passed through the valves separating the chambers, from one chamber into another. The two right chambers (the right atrium and right ventricle) are responsible for pumping blood to the lungs. When this blood passes by the lungs, it collects oxygen (enters the body during inhalation), and drops off carbon dioxide (exits the body during exhalation). The freshly oxygenated blood returns to the left side of the heart (left atrium and left ventricle), from which it is pumped into the aorta. The aorta splits into the other blood vessels of the body and distributes the oxygenated blood. When the oxygen is used by cells, they replace it with carbon dioxide. The blood collects through the blood vessels and returns to the right side of the heart. From here, the cycle is repeated, with the right side of the heart pumping the deoxygenated blood to the lungs where it becomes oxygenated.

Q.2. Difference between the arteries and capillaries.

Arteries are the blood vessels that carry blood away from the heart. The walls of these vessels are elastic in nature, which allows them to expand and contract as the heart powerfully pumps blood through them. The size of these vessels decreases as they move further and further away from the heart, until they become the smallest vessels – capillaries. The heart has its own set of arteries to supply it with blood called the coronary arteries.

#### Capillaries

As the arteries become smaller and smaller, they eventually turn into capillaries – very thin blood vessels. These vessels are thin enough to allow the products carried within the blood to be exchanged with the surrounding tissues. These include nutrients derived from food, oxygen, carbon dioxide, and waste products. As waste products and carbon dioxide collect in the capillaries, many capillaries come together and form larger vessels to transport the blood back to the heart – these larger vessels are the veins.

Q.3. Define thrombosis. Write down the predisposing factors of thrombosis.

#### Thrombosis

Thrombosis is the process of formation of solid mass in circulation from the constituents of flowing blood; the mass itself is called a thrombus. In contrast, a blood clot is the mass of coagulated blood formed in vitro e.g. in a test tube. Haematoma is the extravascular accumulation of blood clot e.g. into the tissues. Haemostatic plugs are the blood clots formed in healthy individuals at the site of bleeding e.g. in injury to the blood vessel. In other words, haemostatic plug at the cut end of a blood vessel may be considered the simplest form of thrombosis.



## Predisposing Factors

A number of primary (genetic) and secondary (acquired) factors favour thrombosis.

### Primary (Genetic) factors:

- Deficiency of antithrombin
- Deficiency of protein C or S
- Defects in fibrinolysis
- Mutation in factor V
- **Secondary (acquired) factors:**
- Advanced age
- Prolonged bed-rest
- Immobilisation
- Cigarette smoking

### Clinical conditions predisposing to thrombosis:

- Heart diseases (e.g. myocardial infarction, CHF, rheumatic mitral stenosis, cardiomyopathy)
- Vascular diseases (e.g. atherosclerosis, aneurysms of the aorta and other vessels, varicosities of leg veins)
- Hypercoagulable conditions (e.g. polycythaemia, dehydration, nephrotic syndrome, disseminated cancers)

Q.4. Define Epilepsy. Describe the types of epilepsy.

### Epilepsy

Epilepsy is a common neurological disorder. It is a disorder of the brain characterized by an increased predisposition to the generation of epileptic seizures. About five percent of the population suffer an epileptic seizure at least once in their lives. However, the concept of defining epilepsy requires the occurrence of at least two unprovoked seizures or a seizure associated with changes in the brain that indicate an increased susceptibility to the onset of further seizures. About one third of epilepsies occur for the first time beyond the age of 60; one-third starts at an early age. The likelihood of developing epilepsy over the course of life therefore increases due to the epidemiological age trend. An epileptic seizure is a transient state of the brain that causes clinical symptoms due to pathological neuronal activity of the brain.

Types; 1. Absence seizure

2. Tonic-clonic seizure

3. Atonic seizure

4. tonic seizure

5. clonic seizure

6. myoclonic seizure



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## Section – C

04X06 = 24 Marks

Q.1. Describe the RBC, WBC and platelets.

Red blood cells (RBCs)	These are the most common cells in the blood. These cells contain a special protein called hemoglobin that allows them to transport oxygen and carbon dioxide within the blood stream. This function makes these cells extremely important.
White blood cells (WBCs)	These cells are part of the immune system, acting to defend the body from infectious diseases or intruding cells. They destroy and remove old cells and debris from the blood, while also attacking foreign disease-causing agents and foreign substances in the body.
Platelets	These cells are responsible for the clotting of blood, also referred to as 'coagulation'. When the skin is cut, these cells create a mesh-like barrier over the cut. Other blood cells become caught in the mesh and collect to form a clot, which stops blood from leaving the body and prevents bacteria from entering the bloodstream. Platelets are very important in tissue healing.
Plasma	Plasma is the liquid component of blood that the cells are suspended in. It accounts for around 50% of the total volume of blood and contains things like dissolved proteins, glucose, and platelets, as well as the blood cells themselves.

Q.2. Define coronary heart disease. Write down the four causes, symptom and intervention of Coronary heart disease.

### 1 Diseases of the Cardiovascular System

Now that you have an understanding of the structure and normal function of the CVS, we will look at some important diseases that occur as a result of issues that affect the CVS. Disturbances to any part of the CVS, including conditions discussed in the previous section, such as heart chamber or valve defects and arrhythmias like atrial fibrillation, can contribute to the development and severity of diseases that ultimately prevent the blood from adequately circulating to all parts of the body.

**Cardiovascular Disease (CVD) includes a group of disorders of the heart and blood vessels, including:**

- Coronary heart disease (CHD) (heart attack, angina, congestive heart failure)
- Cerebrovascular disease (stroke)
- Peripheral vascular disease (poor blood supply to limbs)
- Rheumatic heart disease (heart damage from bacterial infection)
- Congenital heart disease (heart defect present at birth)
- Deep vein thrombosis and pulmonary embolism (blockages of blood flow due to blood clots)

CHD and cerebrovascular disease (stroke) account for the majority of cases of CVD. CHD includes heart attacks, angina, and congestive heart failure. The heart requires a constant supply of oxygenated blood. As mentioned previously, the heart has its own blood supply, which is critical to its function. When the muscle cells in the heart do not receive adequate oxygen, they die. A blocked artery within the heart is the usual cause of insufficient oxygen for heart function. How is this caused? First, we must understand atherosclerosis (blockages in the arteries due to plaque build-up). Previously, arteries were described as elastic vessels that expand and contract with each beat of the heart. As a person ages, these arteries lose their elasticity and can get harder and thicker. This thickening and hardening is due to the deposition of plaque on the internal lining of the arteries.



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Plaque typically contains cholesterol (fatty substance), waste products from cells, and calcium. As this plaque deposits itself on the normally smooth lining of the arteries, it reduces the amount of space through which blood can flow. Plaques can rupture or crack, which can cause the sudden formation of a blood clot.

## 1.1 Causes

- Hypertension
- Smoking
- Hyperlipidemia
- Toxins
- Viruses
- Immune Reaction

## 1.2 Signs and Symptoms

- Possible normal finding during asymptomatic periods
- Chest pain
- Palpitations
- Dyspnea
- Syncope
- Cough or hemoptysis
- Excessive fatigue

## 1.3 Diagnosis

- History collection
- Physical examination
- Electrocardiography - when blood is reduced and ischemia occurs, ST segment depression, T wave inversion, or both is noted, the ST segment return to normal when the blood flow returns.
- With infarction, cell injury result in ST segment elevation, followed by T wave inversion and an abnormal Q wave.
- Cardiac Catheterization
- Blood lipid level

## 1.4 Intervention

- Instruct the client regarding the purpose of diagnostic medical and surgical procedure and pre-procedure and post-procedure expectations.
- Assist the client to identify risk factors that can be modified.
- Assist the client to set goals to promote lifestyle changes to reduce the impact of risk factors.
- Assist the client to identify barriers to compliance with the therapeutic plan and to identify methods to overcome barriers.
- Instruct the client regarding a low calorie, low sodium, low cholesterol and low fat diet, with an increase in dietary fiber.
- Stress to the client that dietary changes are not temporary and must be maintained for life; instruct the client regarding prescribed medication.



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Provide community resources to the client regarding exercise, smoking cessation, and stress reducing as appropriate.

Q.3. What do you mean meningitis? Explain the pathophysiology, Positive Kernig's sign and Positive Brudzinski's sign.

### **Meningitis**

Bacterial meningitis is still a serious disease - as many as 15 to 20 percent of patients still die from pneumococcal meningitis. Viral meningitis is usually less severe. Patients complain of headaches, meningitis and high fever. Partly it comes to nausea, vomiting, photosensitivity, confusion states, consciousness disturbances and epileptic seizures. Since the disease can take a rapid and life-threatening course, the rapid diagnosis and initiation of (intensive) medical therapy are enormously important to ensure the survival of patients and to protect them from permanent neurological damage.

Pathophysiology: Bacterial meningitis remains a disease with associated unacceptable morbidity and mortality rates despite the availability of effective bactericidal antimicrobial therapy. Through the use of experimental animal models of infection, a great deal of information has been gleaned concerning the pathogenic and pathophysiologic mechanisms operable in bacterial meningitis. Most cases of bacterial meningitis begin with host acquisition of a new organism by nasopharyngeal colonization followed by systemic invasion and development of a high-grade bacteremia. Bacterial encapsulation contributes to this bacteremia by inhibiting neutrophil phagocytosis and resisting classic complement-mediated bactericidal activity. Central nervous system invasion then occurs, although the exact site of bacterial traversal into the central nervous system is unknown. By production and/or release of virulence factors into and stimulation of formation of inflammatory cytokines within the central nervous system, meningeal pathogens increase permeability of the blood-brain barrier, thus allowing protein and neutrophils to move into the subarachnoid space. There is then an intense subarachnoid space inflammatory response, which leads to many of the pathophysiologic consequences of bacterial meningitis, including cerebral edema and increased intracranial pressure. Attenuation of this inflammatory response with adjunctive dexamethasone therapy is associated with reduced concentrations of tumor necrosis factor in the cerebrospinal fluid, with diminished cerebrospinal fluid leukocytosis, and perhaps with improvement of morbidity, as demonstrated in recent clinical trials. Further information on the pathogenesis and pathophysiology of bacterial meningitis should lead to the development of more innovative treatment and/or preventive strategies for this disorder.

To look for Kernig's sign:

Lie face up.

Flex your knee and hip in a 90° angle while someone else slowly extends your knee.

If you feel either resistance or pain, see a doctor right away for treatment.

To check for the Brudzinski sign:



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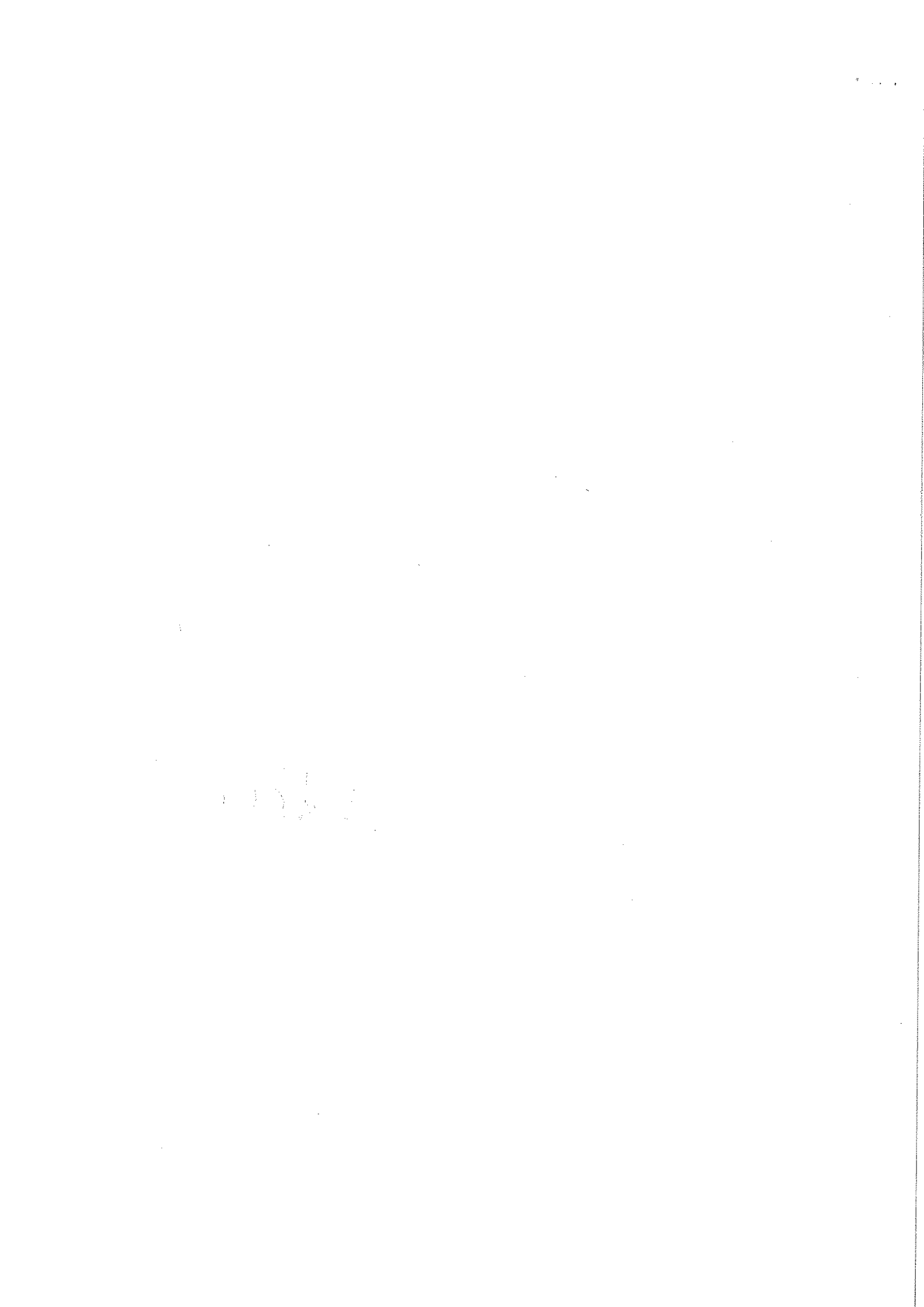
1. Lie flat on your back.
2. Your doctor will place one hand behind your head, and another on your chest to prevent you from rising.
3. Then, your doctor will lift your head, bringing your chin to your chest.

A positive Brudzinski sign occurs when this causes flexion of the hips.

Q.4. Draw the Glasgow comma scale.

TABLE 38-2		
Glasgow Coma Scale		
BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
	To speech	3
	To pain	2
	No response	1
Best verbal response	Oriented to time, place, and person	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1
Best motor response	Obeys commands	6
	Moves to localized pain	5
	Flexion withdrawal from pain	4
	Abnormal flexion (decorticate)	3
	Abnormal extension (decerebrate)	2
	No response	1
Total score:	Best response	15
	Comatose client	8 or less
	Totally unresponsive	3

*K. Kaur*





**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1307**

**Time: 2 Hours**

**Course Name: Respiratory Care**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

**10X01 = 10 Marks**

**Q.1. During inspiration the dome shaped muscle of the diaphragm:**

- |                    |                        |
|--------------------|------------------------|
| a) Flattens        | b) Resumes dome shaped |
| c) Nothing happens | d) none of the above   |

**Q.2. Atelectasis is a medical term used to describe:**

- |                    |                 |
|--------------------|-----------------|
| a) Collapsed lungs | b) Both A and B |
| c) Inflamed lungs  | d) All of above |

**Q.3. The ..... membrane surrounds the lungs:**

- |                |                |
|----------------|----------------|
| a) Pericardial | b) Mediastinal |
| c) Pleural     | d) Peritoneal  |

**Q.4. Right lung has how many lobes:**

- |      |      |
|------|------|
| a) 2 | b) 3 |
| c) 4 | d) 5 |

**Q.5. Organs affected in SARS is:**

- |          |          |
|----------|----------|
| a) Lungs | b) Heart |
| c) Liver | d) Brain |

**Q.6. Incentive spirometry is mainly used to prevent:**

- |                           |                         |
|---------------------------|-------------------------|
| a) Prevent atelectasis    | b) Prevent pneumothorax |
| c) Promote wound drainage | d) none of the above    |

**Q.7. MDI refers to:**

- |                         |                        |
|-------------------------|------------------------|
| a) Meter drug inhaler   | b) Metered dry inhaler |
| c) Metered dose inhaler | d) None of the above   |

**Q.8. Bronchoscopy involves visualization of:**

- |                                      |                 |
|--------------------------------------|-----------------|
| a) Upper and lower respiratory tract | b) kidney       |
| c) Liver                             | d) All of above |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. What are bronchodilators:

- a) Increases urine output
- b) Relaxed constricted airways
- c) Blood thinners
- d) None of the above

Q.10. COPD stands for:

- a) Chronic oesophageal pulmonary disease
- b) Continuous obstructive pulmonary ds.
- c) Chronic operative pulmonary disease
- d) Chronic obstructive pulmonary disease

### Section – B

04X04 = 16 Marks

- Q.1. Define pneumonia and mention regarding its preventive measures
- Q.2. Difference between inspiration and expiration
- Q.3. Draw a well labelled diagram of respiratory system
- Q.4. Explain upper respiratory tract

### Section – C

04X06 = 24 Marks

- Q.1. Define emphysema. Enlist its risk factors and write in detail regarding its prevention and treatment.
- Q.2. Explain in detail about bronchitis.
- Q.3. Define empyema along with its causes, symptoms, types and treatment
- Q.4. Explain in detail regarding asthma.

*K Kaur*



**School of Health Care and Paramedics Skills**

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**Section – A**

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- |      |             |
|------|-------------|
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|-----------------|----------|
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- b) Continuous obstructive pulmonary ds.
- c) Chronic operative pulmonary disease
- d) Chronic obstructive pulmonary disease

## Section – B

04X04 = 16 Marks

Q.1. Define pneumonia and mention regarding its preventive measures.

### Pneumonia

Pneumonia is a bacterial or viral infection of the lungs. Symptoms can include fever, chills, shortness of breath, coughing that produces phlegm, and chest pain.

### Prevention

- Breastfeeding your baby (preferably beyond four months) – to help boost their immune system
- Quit smoking and ensure a smoke-free household
- Keeping your home warm and well-ventilated
- Vaccination, in particular against pneumococcal disease, whooping cough, Hib (Haemophilus influenza type b), and influenza
- Regular and thorough hand-washing
- Avoiding contact with people who have colds, the flu, or other infections.
- Vaccines against pneumococcal disease may not always prevent pneumonia but they may prevent serious complications of pneumonia should infection occur.

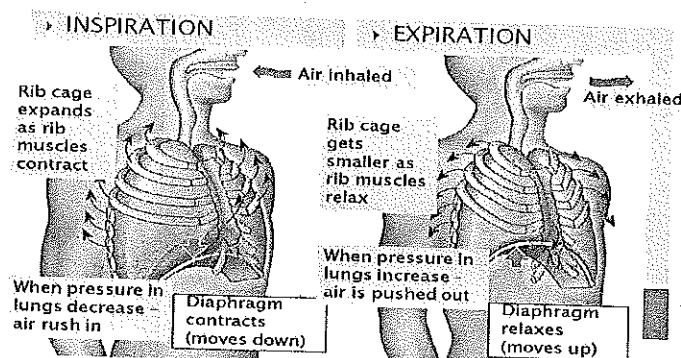
Q.2. Difference between inspiration and expiration.

### Inspiration

During inspiration, the dome-shaped muscle of the diaphragm flattens, and the inter-costal muscles pull the rib cage upwards and outwards. This increases the volume of the chest cavity and air is drawn into the lungs.

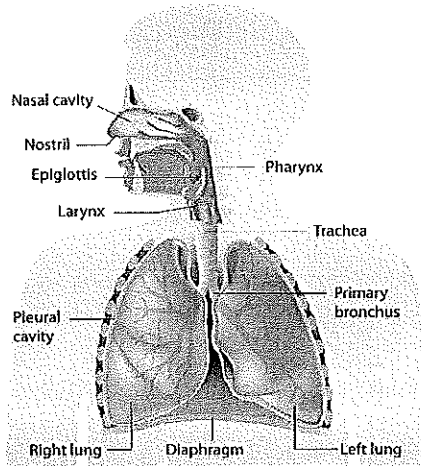
### Expiration

During expiration, the diaphragm relaxes and resumes its dome shape. The inter-costal muscles also relax and the rib cage falls inwards and downwards. This reduces the volume of the chest cavity and air is forced out of the lungs.





**Q.3. Draw a well labelled diagram of respiratory system.**



**Q.4. Explain upper respiratory tract.**

Structure	Description, General and distinctive features	Function
Nose	Jutting external portion is supported by bone and cartilage. Internal nasal cavity is divided by midline nasal septum and lined with mucosa.  Roof of nasal cavity contains olfactory epithelium.	Produces mucus; filters, warms, and moistens incoming air; resonance chamber for speech  Receptors for sense of smell
Paranasal sinuses	Mucosa-lined, air-filled cavities in cranial bones surrounding nasal cavity.	Same as for nasal cavity; also lighten skull
Pharynx	Passageway connecting nasal cavity to larynx and oral cavity to esophagus. Three subdivisions: nasopharynx, oropharynx, and laryngopharynx.  Houses tonsils (lymphoid tissue masses involved in protection against pathogens).	Passageway for air and food  Facilitates exposure of immune system to inhaled antigens
Larynx	Connects pharynx to trachea. Has framework of cartilage and dense connective tissue. Opening (glottis) can be closed by epiglottis or vocal folds.  Houses vocal folds (true vocal cords).	Air passageway; prevents food from entering lower respiratory tract  Voice production

**Section – C**

04X06 = 24 Marks

**Q.1. Define emphysema. Enlist its risk factors and write in detail regarding its prevention and treatment.**

**Emphysema**

Emphysema is a lung condition that causes shortness of breath. In people with emphysema, the air sacs in the lungs (alveoli) are damaged. Over time, the inner walls of the air sacs weaken and rupture — creating larger air spaces instead of many small ones. This reduces the surface area of the lungs and, in turn, the amount of oxygen that reaches your bloodstream.



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## Risk factors

Factors that increase your risk of developing emphysema include:

**Smoking:** Emphysema is most likely to develop in cigarette smokers, but cigar and pipe smokers also are susceptible. The risk for all types of smokers increases with the number of years and amount of tobacco smoked.

**Age:** Although the lung damage that occurs in emphysema develops gradually, most people with tobacco-related emphysema begin to experience symptoms of the disease between the ages of 40 and 60.

**Exposure to Secondhand smoke:** Secondhand smoke, also known as passive or environmental tobacco smoke, is smoke that you inadvertently inhale from someone else's cigarette, pipe or cigar. Being around second-hand smoke increases your risk of emphysema.

**Occupational exposure to fumes or dust:** If you breathe fumes from certain chemicals or dust from grain, cotton, wood or mining products, you're more likely to develop emphysema. This risk is even greater if you smoke.

**Exposure to indoor and outdoor pollution:** Breathing indoor pollutants, such as fumes from heating fuel, as well as outdoor pollutants — car exhaust, for instance — increases your risk of emphysema.

## Prevention

To prevent emphysema, don't smoke and avoid breathing second-hand smoke. Wear a mask to protect your lungs if you work with chemical fumes or dust.

## Treatment

Emphysema and COPD can't be cured, but treatments can help relieve symptoms and slow the progression of the disease.<sup>^</sup>

## Medications

Depending upon the severity of your symptoms, your doctor might suggest:

- **Bronchodilators.** These drugs can help relieve coughing, shortness of breath and breathing problems by relaxing constricted airways.
- **Inhaled steroids.** Corticosteroid drugs inhaled as aerosol sprays reduce inflammation and may help relieve shortness of breath.
- **Antibiotics.** If you have a bacterial infection, like acute bronchitis or pneumonia, antibiotics are appropriate.

## Therapy

- **Pulmonary rehabilitation.** A pulmonary rehabilitation program can teach you breathing exercises and techniques that may help reduce your breathlessness and improve your ability to exercise.
- **Nutrition therapy.** You'll also receive advice about proper nutrition. In the early stages of emphysema, many people need to lose weight, while people with late-stage emphysema often need to gain weight.
- **Supplemental oxygen.** If you have severe emphysema with low blood oxygen levels, using oxygen regularly at home and when you exercise may provide some relief. Many people use oxygen 24 hours a day. It's usually administered via narrow tubing that fits into your nostrils.



## Q.2. Explain in detail about bronchitis.

### Bronchitis

Bronchitis is an inflammation of the lining of your bronchial tubes, which carry air to and from your lungs. People who have bronchitis often cough up thickened mucus, which can be discoloured. Bronchitis may be either acute or chronic. Often developing from a cold or other respiratory infection, acute bronchitis is very common. Chronic bronchitis, a more serious condition, is a constant irritation or inflammation of the lining of the bronchial tubes, often due to smoking. Acute bronchitis, also called a chest cold, usually improves within a week to 10 days without lasting effects, although the cough may linger for weeks. However, if you have repeated bouts of bronchitis, you may have chronic bronchitis, which requires medical attention. Chronic bronchitis is one of the conditions included in chronic obstructive pulmonary disease (COPD).

### Causes

- Acute bronchitis is normally caused by viruses,
- Typically, those that also cause colds and flu.
- It can also be caused by bacterial infection and exposure to substances that irritate the lungs, such as tobacco smoke, dust, fumes, vapors, and air pollution.

### Risk factors

Factors that increase your risk of bronchitis include:

- Cigarette smoke. People who smoke or who live with a smoker are at higher risk of both acute bronchitis and chronic bronchitis.
- Low resistance. This may result from another acute illness, such as a cold, or from a chronic condition that compromises your immune system. Older adults, infants and young children have greater vulnerability to infection.
- Exposure to irritants on the job. Your risk of developing bronchitis is greater if you work around certain lung irritants, such as grains or textiles, or are exposed to chemical fumes.
- Gastric reflux. Repeated bouts of severe heartburn can irritate your throat and make you more prone to developing bronchitis.

### Symptoms

For either acute bronchitis or chronic bronchitis, signs and symptoms may include:

- Cough
- Production of mucus (sputum), which can be clear, white, yellowish-gray or green in colour — rarely, it may be streaked with blood
- Fatigue
- Shortness of breath
- Slight fever and chills
- Chest discomfort
- Mild headache
- Body aches.
- productive cough that lasts at least three months

### Complications

Although a single episode of bronchitis usually isn't cause for concern, it can lead to pneumonia in some people. Repeated bouts of bronchitis, however, may mean that you have chronic obstructive pulmonary disease (COPD).

### Prevention

To reduce your risk of bronchitis, follow these tips:

- Avoid cigarette smoke. Cigarette smoke increases your risk of chronic bronchitis.



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- Get vaccinated. Many cases of acute bronchitis result from influenza, a virus. Getting a yearly flu vaccine can help protect you from getting the flu. You may also want to consider vaccination that protects against some types of pneumonia.
- Wash your hands. To reduce your risk of catching a viral infection, wash your hands frequently and get in the habit of using alcohol-based hand sanitizers.
- Wear a surgical mask. If you have COPD, you might consider wearing a face mask at work if you're exposed to dust or fumes, and when you're going to be among crowds, such as while traveling.

### Diagnosis

Chest X-ray. A chest X-ray can help determine if you have pneumonia or another condition that may explain your cough. This is especially important if you ever were or currently are a smoker. Sputum tests. Sputum is the mucus that you cough up from your lungs. It can be tested to see if you have illnesses that could be helped by antibiotics. Sputum can also be tested for signs of allergies. Pulmonary function test. During a pulmonary function test, you blow into a device called a spirometer, which measures how much air your lungs can hold and how quickly you can get air out of your lungs. This test checks for signs of asthma or emphysema.

Q.3. Define empyema along with its causes, symptoms, types and treatment.

### Empyema

Empyema is also called pyothorax or purulent Pleuritis. It's a condition in which pus gathers in the area between the lungs and the inner surface of the chest wall. This area is known as the pleural space. Pus is a fluid that's filled with immune cells, dead cells, and bacteria. Pus in the pleural space can't be coughed out. Instead, it needs to be drained by a needle or surgery. Empyema usually develops after pneumonia, which is an infection of the lung tissue

### Causes

Empyema can develop after you have pneumonia. Many different types of bacteria may cause pneumonia, but the two most common are Streptococcus pneumoniae and Staphylococcus aureus. Occasionally, empyema may happen after you've had surgery on your chest. Medical instruments can transfer bacteria into your pleural cavity. The pleural space naturally has some fluid, but infection can cause fluid to build up faster than it can be absorbed. The fluid then becomes infected with the bacteria that caused the pneumonia or infection. The infected fluid thickens. It can cause the lining of your lungs and chest cavity to stick together and form pockets. This is called an empyema. Your lungs may not be able to inflate completely, which can lead to breathing difficulties

### Symptoms

#### Simple empyema

Simple empyema occurs in the early stages of the illness. A person has this type if the pus is free-flowing. The symptoms of simple empyema include:

- shortness of breath
- dry cough
- fever
- sweating
- chest pain when breathing that may be described as stabbing
- headache
- confusion
- loss of appetite



## Complex empyema

Complex empyema occurs in the later stage of the illness. In complex empyema, the inflammation is more severe. Scar tissue may form and divide the chest cavity into smaller cavities. This is called loculation, and it's more difficult to treat. If the infection continues to get worse, it can lead to the formation of a thick peel over the pleura, called a pleural peel. This peel prevents the lung from expanding. Surgery is required to fix it.

## Treatment

- Treatment is aimed at removing the pus and fluid from the pleura and treating the infection.
- Antibiotics are used to treat the underlying infection. The specific type of antibiotic depends on what type of bacteria is causing the infection.
- The method used to drain the pus depends on the stage of the empyema.
- In simple cases, a needle can be inserted into the pleural space to drain the fluid. This is called percutaneous thoracentesis.
- In the later stages, or complex empyema, a drainage tube must be used to drain the pus. This procedure is usually performed under anaesthesia in an operating room. There are different types of surgery for this

## Q.4. Explain in detail regarding asthma.

### Asthma

Asthma is a disease of airways that is characterised by increased responsiveness of the tracheobronchial tree to a variety of stimuli resulting in widespread spasmodic narrowing of the air passages which may be relieved spontaneously or by therapy. Asthma is an episodic disease manifested clinically by paroxysms of dyspnoea, cough and wheezing. However, a severe and unremitting form of the disease termed status asthmaticus may prove fatal. Bronchial asthma is common and prevalent worldwide; in the United States about 4% of population is reported to suffer from this disease. It occurs at all ages but nearly 50% of cases develop it before the age of 10 years. In adults, both sexes are affected equally but in children there is 2:1 male- female ratio.

### Causes

- It isn't clear why some people get asthma and others don't, but it's probably due to a combination of environmental and genetic (inherited) factors.
- Airborne substances, such as pollen, dust mites, mold spores, pet dander or particles of cockroach waste
- Respiratory infections, such as the common cold
- Physical activity (exercise-induced asthma)
- Cold air
- Air pollutants and irritants, such as smoke.
- Certain medications, including beta blockers, aspirin.
- Strong emotions and stress.

### Risk factors

- Having a blood relative (such as a parent or sibling) with asthma
- Having another allergic condition, such as atopic dermatitis or allergic rhinitis (hay fever)
- Being overweight
- Being a smoker
- Exposure to secondhand smoke
- Exposure to exhaust fumes or other types of pollution



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Exposure to occupational triggers, such as chemicals used in farming, hairdressing and manufacturing

### Symptoms

- Coughing
- Wheezing — may be absent
- Breathlessness — while walking or while at rest
- Respiratory rate increased
- Chest tightness
- Chest or abdominal pain
- Fatigue, feeling out of breath
- Agitation
- Increased pulse rate
- Inability to participate in sports

During an acute asthma episode, signs and symptoms of increasing respiratory distress or breathing difficulty include:

- Inability to talk in sentences, using phrases or only words
- Retractions — increased use of chest, neck or abdominal muscles
- Refusal to lie down — a child may prefer to sit or lean forward in order to make breathing easier
- It is important to remember that not everyone with asthma has the same symptoms.

### Diagnosis

- Physical exam
- **Spirometry**
- Additional tests

**Methacholine challenge.** Methacholine is a known asthma trigger that, when inhaled, will cause mild constriction of your airways. If you react to the methacholine, you likely have asthma. This test may be used even if your initial lung function test is normal.

**Nitric oxide test.** This test, though not widely available, measures the amount of the gas, nitric oxide, that you have in your breath. When your airways are inflamed — a sign of asthma — you may have higher than normal nitric oxide levels.

**Imaging tests.** A chest X-ray and high-resolution computerized tomography (CT) scan of your lungs and nose cavities (sinuses) can identify any structural abnormalities or diseases (such as infection) that can cause or aggravate breathing problems.

**Allergy testing.** This can be performed by a skin test or blood test. Allergy tests can identify allergy to pets, dust, mold and pollen. If important allergy triggers are identified, this can lead to a recommendation for allergen immunotherapy.

**Sputum eosinophils.** This test looks for certain white blood cells (eosinophils) in the mixture of saliva and mucus (sputum) you discharge during coughing. Eosinophils are present when symptoms develop and become visible when stained with a rose-coloured dye (eosin).

**Provocative testing for exercise and cold-induced asthma.** In these tests, your doctor measures your airway obstruction before and after you perform vigorous physical activity or take several breaths of cold air.

*K. Kauri*



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1307**

**Time: 2 Hours**

**Course Name: Respiratory Care**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. Oxygen uptake. The air that we breathe in during normal conditions from the atmosphere is composed of the following gases:**

- |                         |                   |
|-------------------------|-------------------|
| a) Oxygen 34%           | b) Nitrogen 12%   |
| c) Carbon dioxide 0.03% | d) Rare gases 67% |

**Q.2. Which gases also work as a respiratory stimulant?**

- |                     |                    |
|---------------------|--------------------|
| a) O <sub>2</sub>   | b) CO <sub>2</sub> |
| c) N <sub>2</sub> O | d) CO              |

**Q.3. The lung function tests are determined by:**

- |                     |               |
|---------------------|---------------|
| a) Tonometer        | b) Spirometer |
| c) Sphygmomanometer | d) Barometer  |

**Q.4. The trachea or wind pipe is made up of cartilage rings; shape of the rings is:**

- |               |             |
|---------------|-------------|
| a) C shape    | b) S shape  |
| c) Cone shape | d) Straight |

**Q.5. The major passage and structure of the upper respiratory tract include:**

- |            |                    |
|------------|--------------------|
| a) Trachea | b) Pharynx         |
| c) Lungs   | d) Primary bronchi |

**Q.6. Normal tidal volume is:**

- |            |           |
|------------|-----------|
| a) 1000 cc | b) 600 ml |
| c) 500 cc  | d) 500 ml |

**Q.7. Effect on shape of heart during expiration:**

- |              |                  |
|--------------|------------------|
| a) Decrease  | b) Increase      |
| c) Unchanged | d) None of above |

**Q.8. Before doing suctioning, it is not necessary to:**

- |                              |                          |
|------------------------------|--------------------------|
| a) Check spo <sub>2</sub>    | b) Wash hand             |
| c) Auscultate the lung sound | d) Check the temperature |



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Respiratory diseases. A type of disease that affects the lungs and other parts of the respiratory system. Causes are:

- a) Adhesion
- b) Obesity
- c) Smoking
- d) All of above

Q.10. Asthma is best characterized as:

- a) An inflammatory
- b) A steady progressive disease
- c) An obstructive disease with loss of alveolar walls
- d) A chronic obstructive disorder characterized mucus production

### Section – B

04X04 = 16 Marks

- Q.1. What do you mean regulation of respiration?
- Q.2. How to breathing mechanism in human body?
- Q.3. Describe the home based and hospital-based care provide to pneumonia patient.
- Q.4. Explain the bronchoscopy.

### Section – C

04X06 = 24 Marks

- Q.1. Define tracheostomy. Write down the four indication and contraindication of tracheostomy.
- Q.2. Difference between the simple and complex empyema. Write down the four diagnosis and complication of empyema.
- Q.3. Define emphysema. Describe the four risk factors and complication of emphysema.
- Q.4. Define asthma. Explain the four causes, symptom, and diagnosis of asthma.

*K. Kowri*



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1307**

**Time: 2 Hours**

**Course Name: Respiratory Care**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
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## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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- a) An inflammatory
- b) A steady progressive disease
- c) An obstructive disease with loss of alveolar walls
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### Section – B

04X04 = 16 Marks

Q.1. What do you mean regulation of respiration?

#### Regulation of Respiration

Control of respiration is partly voluntary but mainly involuntary. Both the rate and depth of breathing are controlled by homeostatic mechanisms. The respiratory centre, located in the medulla, is formed from a group of nerves which control the respiratory pattern. Activity is informed by nerves in the Pons, in response to input from other parts of the brain. Motor impulses initiated in the brain pass through the phrenic and intercostal nerves to the diaphragm, and the intercostal muscles.

Chemo receptors are receptors that respond to changes in the partial pressure of CO<sub>2</sub> and O<sub>2</sub> in the blood and Cerebro Spinal Fluid (CSF). Chemoreceptors increase activity when an increase in carbon dioxide is present, such as in hypoxia, which then in turn stimulates a change to the rate and depth of breathing to restore partial pressures of oxygen and carbon dioxide to the usual levels. Adversely, too much ventilation will decrease the partial pressure of carbon dioxide and reduce the amount of chemoreceptor activity and ventilation.

There are two types of chemo receptors in the body:

- **Central** – located in the medulla in the brain and respond to changes in partial pressure of carbon dioxide.
- **Peripheral/Arterial** – monitor changes to partial pressure of oxygen and carbon dioxide in arterial blood. Central Chemoreceptors are surrounded by CSF. When arterial PaCO<sub>2</sub> rises they respond by stimulating the respiratory centre to increase the respiratory rate in order to decrease the excess CO<sub>2</sub>. A small reduction in PaO<sub>2</sub> will have a similar effect but less pronounced. Peripheral Chemoreceptors located in the carotid body and aorta are more responsive to small rises in arterial PaCO<sub>2</sub> than small decreases in PaO<sub>2</sub>. Central Chemoreceptors generate impulses sent along the glossopharyngeal and vagus nerves to the medulla, which in turn increases the rate and depth of breathing.

Q.2. How to breathing mechanism in human body?

#### Inspiration

During inspiration, the dome-shaped muscle of the diaphragm flattens, and the inter-costal muscles pull the rib cage upwards and outwards. This increases the volume of the chest cavity and air is drawn into the lungs.

## Expiration

During expiration, the diaphragm relaxes and resumes its dome shape. The inter-costal muscles also relax and the rib cage falls inwards and downwards. This reduces the volume of the chest cavity and air is forced out of the lungs.

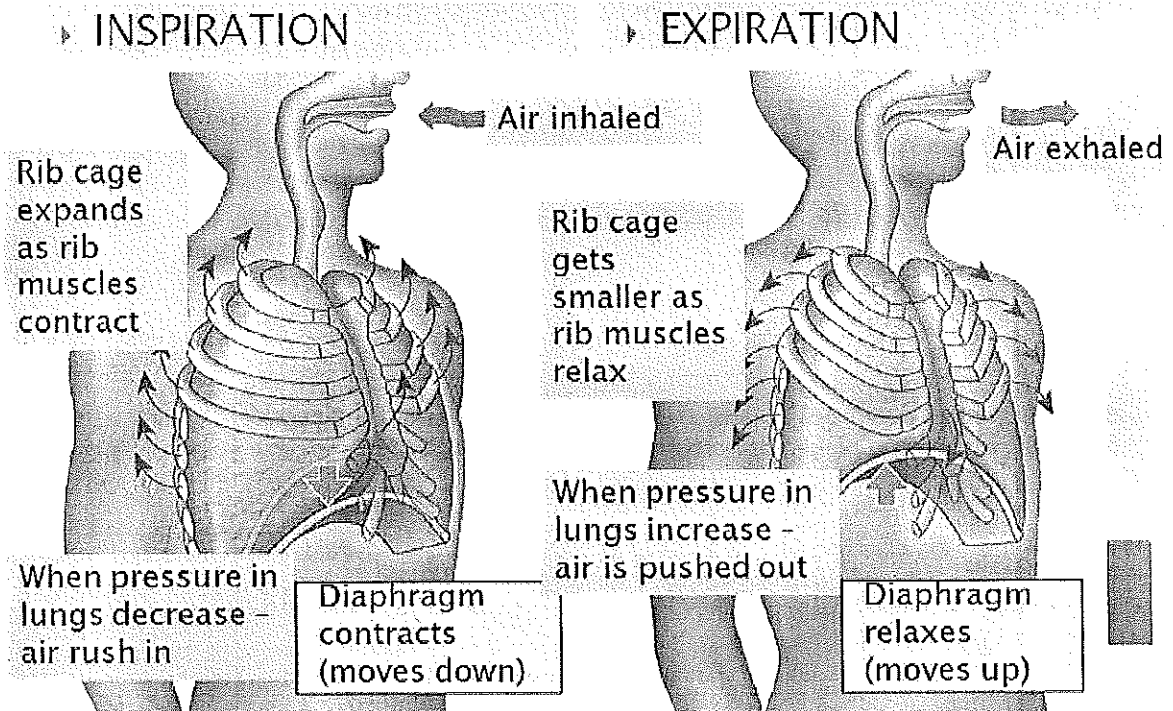


Figure 1: Breathing Mechanism

In a normal average adult male, the lungs have a combined capacity of about 6 liters, with about 500 ml of air inspired at each breath. Breathing is normally very quiet, and without much effort. During exertion the respiratory rate will increase, and so might the respiratory effort so that more air is pulled into the lungs and, therefore, more oxygen is made available to the cells in the body. This also allows the increasing amount of CO<sub>2</sub> to be exhaled. It is easier to breathe when you are sitting or standing, as the diaphragm can more easily 'push' the contents of the abdomen downwards. Your age, size, gender, and general health can all affect your respiratory performance.

Q.3. Describe the home based and hospital based care provide to pneumonia patient.

### Home-based treatment usually includes:

- Antibiotics - given by mouth as tablets or liquid
- Pain-relieving medications
- Paracetamol to reduce fever
- Drinking plenty of fluids, especially water, to help loosen mucus in the lungs
- Rest.

### Hospital-based treatment usually includes:

- Antibiotics given intravenously (via a drip into a vein)
- Oxygen therapy - to ensure the body gets the oxygen it needs
- Intravenous fluids - to correct dehydration or if the person is too unwell to eat or drink
- Physiotherapy - to help clear the sputum from the lungs.



# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.4. Explain the bronchoscopy.

## **Bronchoscopy**

Bronchoscopy, fiberoptic or rigid, is an invasive procedure for visualization of the upper and lower respiratory tract for the diagnosis and management of a spectrum of inflammatory, infectious, and malignant diseases of the airway and lungs. Bronchoscopy may include retrieval of tissue specimens (bronchial brush, forceps, and needle), cell washings, bronchoalveolar lavage, coagulation, or removal of abnormal tissue by laser. Bronchoscopy is widely used as a diagnostic and therapeutic tool for management of the airway. Bronchoscopy is performed by a specially trained physician bronchoscopist and is assisted by a specially trained health-care professional.

## **Section – C**

04X06 = 24 Marks

Q.1. Define tracheostomy. Write down the four indication and contraindication of tracheostomy.

## **Tracheostomy**

Tracheostomy is a common procedure in intensive care units, and nurses must provide proper care to tracheostomy patients to prevent complications. One of the most important considerations is effective mobilization of secretions, and a suction catheter is the most important tool for that purpose. Each bedside should be equipped with a functional suctioning system, an oxygen source, a manual resuscitation bag, and a complete tracheostomy kit, which should accompany patients wherever they go in the hospital. Complications include infection, tracheomalacia, skin breakdown, and tracheoesophageal fistula. Tracheostomy emergencies include haemorrhage, tube dislodgement and loss of airway, and tube obstruction; such emergencies are managed more effectively when all necessary supplies are readily available at the bedside.

## **Indications**

- The patient has an obstructed upper airway, for example by a foreign object or oedema of the soft tissues.
- The patient is likely to need prolonged artificial ventilation – the tracheostomy reduces the risk of tissue damage and work of breathing by shortening the dead space, therefore promoting the weaning process from artificial ventilation.
- The patient is unable to independently maintain their airway, i.e. those with reduced consciousness levels may be unable to maintain a patent airway or protect from aspiration. □
- The patient's bronchial secretions cannot be cleared due to poor cough effort and the patient is therefore at risk of aspiration. □
- The patient is undergoing upper airway surgery. □
- The patient has undergone a laryngectomy – the stoma will be □permanent.

## **Contraindications**

The only absolute contraindications for tracheostomy are severe localized sepsis/skin infection

Q.2. Difference between the simple and complex empyema. Write down the four diagnosis and complication of empyema.

## **Simple empyema**

Simple empyema occurs in the early stages of the illness. A person has this type if the pus is free-flowing. The symptoms of simple empyema include:

shortness of breath

dry cough

fever

sweating



chest pain when breathing that may be described as stabbing

headache

confusion

loss of appetite

## Complex empyema

Complex empyema occurs in the later stage of the illness. In complex empyema, the inflammation is more severe. Scar tissue may form and divide the chest cavity into smaller cavities. This is called loculation, and it's more difficult to treat. If the infection continues to get worse, it can lead to the formation of a thick peel over the pleura, called a pleural peel. This peel prevents the lung from expanding. Surgery is required to fix it.

### 1.1.1 Diagnostic Evaluation

Chest X-rays and CT scans will show whether or not there's fluid in the pleural space. An ultrasound of the chest will show the amount of fluid and its exact location. Blood tests can help check your white blood cell count, look for the C-reactive protein, and identify the bacteria causing the infection. White cell count can be elevated when you have an infection. During a thoracentesis, a needle is inserted through the back of your ribcage into the pleural space to take a sample of fluid. The fluid is then analysed under a microscope to look for bacteria, protein, and other cells.

### Complications

In rare instances, a case of complex empyema can lead to more severe complications. These include sepsis and a collapsed lung, also called a pneumothorax. The symptoms of sepsis include:

- High fever
- Chills
- Rapid breathing
- Fast heart rate

Low blood pressure

Q.3. Define emphysema. Describe the four risk factors and complication of emphysema.

### Emphysema

Emphysema is a lung condition that causes shortness of breath. In people with emphysema, the air sacs in the lungs (alveoli) are damaged. Over time, the inner walls of the air sacs weaken and rupture — creating larger air spaces instead of many small ones. This reduces the surface area of the lungs and, in turn, the amount of oxygen that reaches your bloodstream.

### 1.1.2 Risk factors

Factors that increase your risk of developing emphysema include:

**Smoking:** Emphysema is most likely to develop in cigarette smokers, but cigar and pipe smokers also are susceptible. The risk for all types of smokers increases with the number of years and amount of tobacco smoked.

**Age:** Although the lung damage that occurs in emphysema develops gradually, most people with tobacco-related emphysema begin to experience symptoms of the disease between the ages of 40 and 60.

**Exposure to Secondhand smoke:** Secondhand smoke, also known as passive or environmental tobacco smoke, is smoke that you inadvertently inhale from someone else's cigarette, pipe or cigar. Being around second-hand smoke increases your risk of emphysema.



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

**Occupational exposure to fumes or dust:** If you breathe fumes from certain chemicals or dust from grain, cotton, wood or mining products, you're more likely to develop emphysema. This risk is even greater if you smoke.

**Exposure to indoor and outdoor pollution:** Breathing indoor pollutants, such as fumes from heating fuel, as well as outdoor pollutants — car exhaust, for instance — increases your risk of emphysema.

### Complications

People who have emphysema are also more likely to develop:

- **Collapsed lung (pneumothorax).** A collapsed lung can be life-threatening in people who have severe emphysema, because the function of their lungs is already so compromised. This is uncommon but serious when it occurs.
- **Heart problems.** Emphysema can increase the pressure in the arteries that connect the heart and lungs. This can cause a condition called core pulmonale, in which a section of the heart expands and weakens.
- **Large holes in the lungs (bullae).** Some people with emphysema develop empty spaces in the lungs called bullae. They can be as large as half the lung. In addition to reducing the amount of space available for the lung to expand, giant bullae can increase your risk of pneumothorax.

Q.4. Define asthma. Explain the four causes, symptom and diagnosis of asthma.

### 1.2 Asthma

Asthma is a disease of airways that is characterised by increased responsiveness of the tracheobronchial tree to a variety of stimuli resulting in widespread spasmodic narrowing of the air passages which may be relieved spontaneously or by therapy. Asthma is an episodic disease manifested clinically by paroxysms of dyspnoea, cough and wheezing. However, a severe and unremitting form of the disease termed status asthmaticus may prove fatal. Bronchial asthma is common and prevalent worldwide; in the United States about 4% of population is reported to suffer from this disease. It occurs at all ages but nearly 50% of cases develop it before the age of 10 years. In adults, both sexes are affected equally but in children there is 2:1 male- female ratio.

#### 1.2.1 Causes

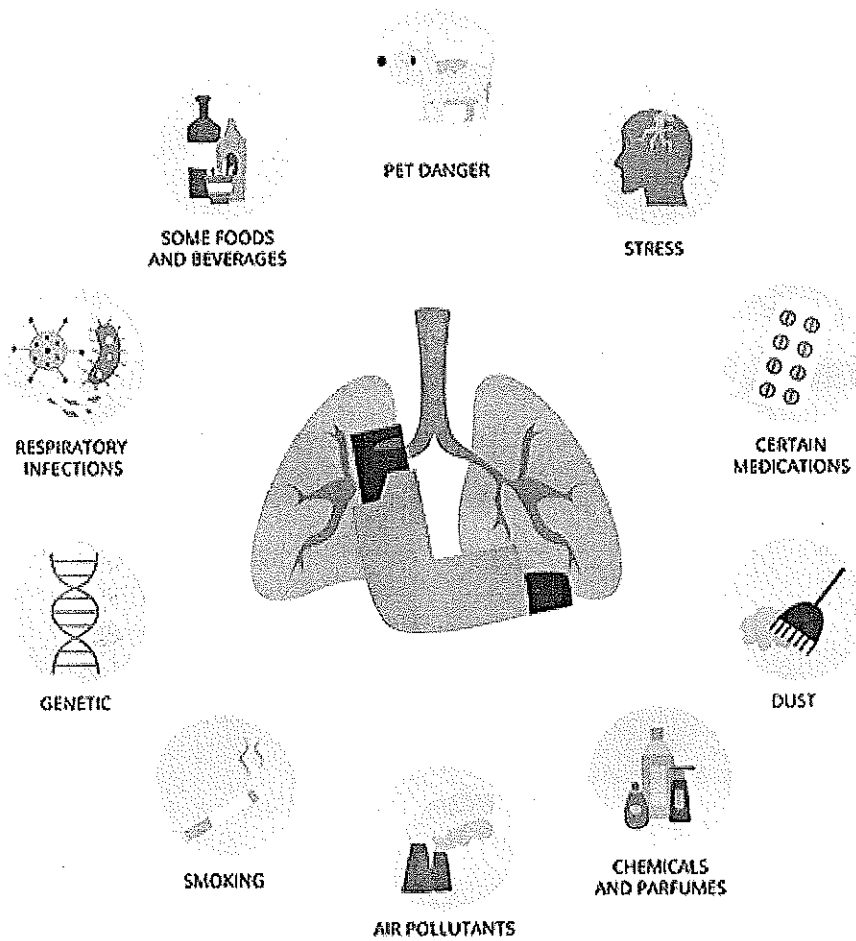
- It isn't clear why some people get asthma and others don't, but it's probably due to a combination of environmental and genetic (inherited) factors.
- Airborne substances, such as pollen, dust mites, mold spores, pet dander or particles of cockroach waste
- Respiratory infections, such as the common cold
- Physical activity (exercise-induced asthma)
- Cold air
- Air pollutants and irritants, such as smoke.
- Certain medications, including beta blockers, aspirin.
- Strong emotions and stress.

#### 1.2.2 Risk factors

- Having a blood relative (such as a parent or sibling) with asthma
- Having another allergic condition, such as atopic dermatitis or allergic rhinitis (hay fever)
- Being overweight
- Being a smoker
- Exposure to secondhand smoke
- Exposure to exhaust fumes or other types of pollution
- Exposure to occupational triggers, such as chemicals used in farming, hairdressing and manufacturing



ASTHMA CAUSES



1.2.3 Symptoms

- Coughing
- Wheezing — may be absent
- Breathlessness — while walking or while at rest
- Respiratory rate increased
- Chest tightness
- Chest or abdominal pain
- Fatigue, feeling out of breath
- Agitation
- Increased pulse rate
- Inability to participate in sports

During an acute asthma episode, signs and symptoms of increasing respiratory distress or breathing difficulty include:

- Inability to talk in sentences, using phrases or only words
- Retractions — increased use of chest, neck or abdominal muscles
- Refusal to lie down — a child may prefer to sit or lean forward in order to make breathing easier
- It is important to remember that not everyone with asthma has the same symptoms.



## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

### Diagnosis

- Physical exam
- Spirometry
- Additional tests

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*K. Kauri*



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1310**

**Time: 2 Hours**

**Course Name: Basic Pediatrics**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
2. **SECTION-B:** Answer all questions from section B. Each question carries 04 marks
3. **SECTION-C:** Answer all questions from section C. Each question carries 06 marks

**Section – A**

10X01 = 10 Marks

**Q.1. Average height of a newborn at time of birth:**

- |             |             |
|-------------|-------------|
| a) 30-33 Cm | b) 45-50 Cm |
| c) 75 Cm    | d) 60-70 Cm |

**Q.2. At which age head circumference become equal to chest circumference:**

- |             |              |
|-------------|--------------|
| a) 3 Months | b) 6 Months  |
| c) 9 Months | d) 12 Months |

**Q.3. Kangaroo mother care is a way of protective the baby form:**

- |                 |                 |
|-----------------|-----------------|
| a) Hyperthermia | b) Malnutrition |
| c) Hypothermia  | d) Hypoglycemia |

**Q.4. Best time to give first bath to newborn:**

- |                            |                            |
|----------------------------|----------------------------|
| a) Immediate after birth   | b) First 24 hours of birth |
| c) 48-72 hours after birth | d) Any time                |

**Q.5. Infant's weight gets double from the birth weight at the age of:**

- |              |              |
|--------------|--------------|
| a) 10 Months | b) 9 Months  |
| c) 6 Months  | d) 12 Months |

**Q.6. Posterior fontanel closed at the age of:**

- |            |            |
|------------|------------|
| a) 2 Weak  | b) 6 Weak  |
| c) 10 Weak | d) 13 Weak |

**Q.7. At which age develop the social smile in the infants?**

- |            |            |
|------------|------------|
| a) 1 Month | b) 4 Month |
| c) 6 Month | d) 2 Month |

**Q.8. Apgar score of a newborn immediately after the birth is checked within:**

- |             |             |
|-------------|-------------|
| a) 1 Minute | b) 2 Minute |
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## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Q.9. Teeth eruption starts at the age of:

- a) 6 Month
- c) 5 Month

- b) 8 Month
- d) 7 Month

Q.10. First milk secreted from mother's breast is called:

- a) Transitional milk
- c) Colostrum

- b) Mature milk
- d) Fore milk

### Section – B

04X04 = 16 Marks

- Q.1. Difference between the live and killed vaccine.
- Q.2. Write down the principle of growth and development.
- Q.3. Draw the chart of "APGAR" Score
- Q.4. Write down the normal anthropometric assessment of newborn.

### Section – C

04X06 = 24 Marks

- Q.1. Define breast feeding. Explain the techniques of breast feeding.
- Q.2. Define KMC. Describe the advantage of KMC.
- Q.3. Define cold chain. Explain the equipment's of cold chain system.
- Q.4. Draw the chart of immunization schedule.

*K. Kaur*



**School of Health Care and Paramedics Skills**

**Session: 2021-22 (Summer Semester)**

**B. Voc. Program, 3<sup>rd</sup> Semester,**

**End-Sem. Examination**

**Course Code: SHP1310**

**Time: 2 Hours**

**Course Name: Basic Pediatrics**

**Max. Marks: 50**

**Instruction:**

1. **SECTION-A:** Answer all questions from section A. Each question carries 01 mark
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- |              |              |
|--------------|--------------|
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## BHARTIYA SKILL DEVELOPMENT UNIVERSITY

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### Section – B

04X04 = 16 Marks

Q.1. Difference between the live and killed vaccine

#### Live Attenuated Vaccines

- Bacteria** BCG, Typhoid (oral), Plague.
- Viral** Oral polio, Measles, Mumps, Rubella, Yellow Fever, Influenza.
- Rickettsia** Epi.typhus.

#### Killed or Inactivated Vaccines

- Bacteria** Pertussis, Typhoid, Cholera, Plague, CS meningitis.
- Viral** Rabies, Hepatitis 'B', Influenza, Salk Polio, and Japanese Encephalitis.
- Toxoids** Bacteria-Diphtheria and Tetanus.
- Cellular Fractions** Meningococcal and Pneumococcal vaccines
- Combinations**
  - DPT (Diphtheria, Pertussis, Tetanus)
  - MMR (Mumps, Measles, Rubella)
  - DT (Diphtheria, Tetanus)
  - Hib-Hep.B (H.influenzae'B', Hepatitis 'B')

Q.2. Write down the principle of growth and development.

#### Principles of Growth and Development

1. Development is similar for all
2. Development proceeds from general to specific
3. Development is continuous
4. Development proceeds at different
5. There is correlation in growth and Development
6. Development comes from maturation and learning
7. There are individual Differences
8. Early Development is more signification than later Development
9. Development proceeds in stages
10. There are predictable patterns of growth and Development

Q.3. Draw the chart of "APGAR" Score.



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Letter	Sign	0	1	2
A	Activity	Flexed arms and legs that resist Extension	Some Flexion	None
P	Pulse	>100bpm	<100bpm	absent
G	Grimace/ Reflex irritability	Cry on stimulation (pull away, cough, sneeze)	Grimace on stimulation	No response to stimulation
A	Appearance	No Cyanosis – pink all over	Blue at extremities only – pink everywhere else	Blue or pale all over
R	Respiration	Strong Crying	Weak/irregular gasping	absent

Q.4. Write down the normal anthropometric assessment of newborn.

### Anthropometric assessment

<b>Weight</b>	The body weight of the neonate on an average is 2.5 – 3 kg. The neonate loses about 10% weight in first ten day of life. Thereafter babies gains about 25-30 gms/day.
<b>Length (head to heel)</b>	The average length of a neonate is 45-50cm.
<b>Head circumference</b>	Immediately after birth, moulding of skull may give inaccurate measurement of head circumference. So it should be measured after 48 hours of birth. The normal head circumference is 33-35 cm. it may be larger in case of hydrocephalus and smaller in microcephaly or craniostenosis (premature closure of sutures).
<b>Chest circumference</b>	It is about 31-33cm. less than head circumference.

### Section – C

04X06 = 24 Marks

Q.1. Define breast feeding. Explain the techniques of breast feeding.

Breast feeding is the most effective way to provide baby with a caring environment and complete nutrition. It meets the nutritional as well as emotional needs of the baby. UNICEF and WHO recommends exclusive breastfeeding to babies until six months of age.

#### Position of mother and baby

Help the mother to get into a comfortable and relaxed position – sitting or lying down. Explain the mother to hold the baby, keeping in mind the 4 key point:

- Head and body of baby should be straight
- The baby's nose should be opposite to the nipple
- Baby's body should be close to her body
- Whole body of the baby must be supported
- Mother should than support her breast with her fingers flat against her chest wall under her breast

Q.2. Define KMC. Describe the advantage of KMC.

Kangaroo mother care (KMC) is a special way of caring for low birth weight (LBW) babies. It improves their health and well-being by promoting effective thermal control, breastfeeding, infection prevention and bonding.

#### Advantages/Benefits of Kangaroo Mother Care

KMC is a humane, low cost method of care of low birth weight infants and it significantly decreases neonatal morbidity and mortality.



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### Benefits to the baby

- Prolonged skin-to-skin contact between the mother and her preterm/low birth weight infant provides effective thermal control with a reduced risk of hypothermia.
- KMC facilitates physiological stability in baby.
- KMC helps in early discharge of babies from NICU thus helps in reducing the risk of nosocomial infection.
- KMC induces sound sleep in baby.

### Benefits of mother

- As the mother is more actively involved in the care of her baby, She is more relaxed and satisfied.
- KMC promotes better mother- infant bonding.
- Mothers are less stressed during kangaroo care as compared with a baby kept in incubator

### Benefits to the family

- KMC is economical to the family, as the family does not have to pay any charges for keeping the baby warm, which they would pay, had the baby been in incubator.
- KMC promotes early discharge of baby which is beneficial for the family.
- KMC facilitates bonding between the baby, mother and other family members involved in giving kangaroo care to the baby.

### Benefits to the nation

- KMC decreases neonatal and infant mortality and morbidity.
- KMC is simple, easily applicable, cost effective and possible even at home.

Q.3. Define cold chain. Explain the equipment's of cold chain system.

Cold chain is a system of storage and transport of vaccines at optimum temperature (2-8°C) from manufacturer to the side of vaccination. This cold chain is needed because vaccines are sensitive to heat and they may lose their potency. If not stored and transported at optimum temperature. Among all vaccines, oral polio vaccines is the most heat sensitive vaccine, requiring storage at 20°C.

### Equipment's Of Cold Chain System

#### 1. Walk-in-Cold Rooms

Walk in cold rooms are located at regional levels and are meant to store vaccine supplies for mate 3 months. They are used to store vaccine supply of 4-5 districts.

#### 2. Deep Freezers (300 Lt) and Ice Lined Refrigerators ILR (300/240 Lt capacity)

Deep freezers and Ice lined refrigerators are supplied to all districts and Walk -in -Cold Rams to store vaccines. Deep freezers are used for making ice packs and for storing OPV and measles vaccines.

#### 3. Cold Boxes

Cold boxes are supplied to all peripheral vaccination centers. These boxes are of different sizes usually 5 liters and 20'liters. A 5 liter cold box can hold one month vaccine supply of a Primary Health Center. They are also used for transportation of vaccines. Fully frozen ice pads are placed at the bottom and sides of cold boxes. The vaccines are first wrapped in polythene bags and then kept inside cold boxes.

#### 4. Vaccine Carrier

Vaccine carries are used to carry small quantity of vaccines (16-20 vials) for outreach sessions. I 8 a square box made 1.9 of insulated material. Four fully frozen ice pads are



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Used to fine the sides. The vaccine carrier should be closed tightly. It has a working capacity of 48 hours.

## 5. Day Carrier

These are square boxes containing 2 ice packs, one placed at bottom and other at up of the box. They are used to carry small quantities of vaccines (6-8 vials) to a nearby session. It has a working capacity of 12 hours.

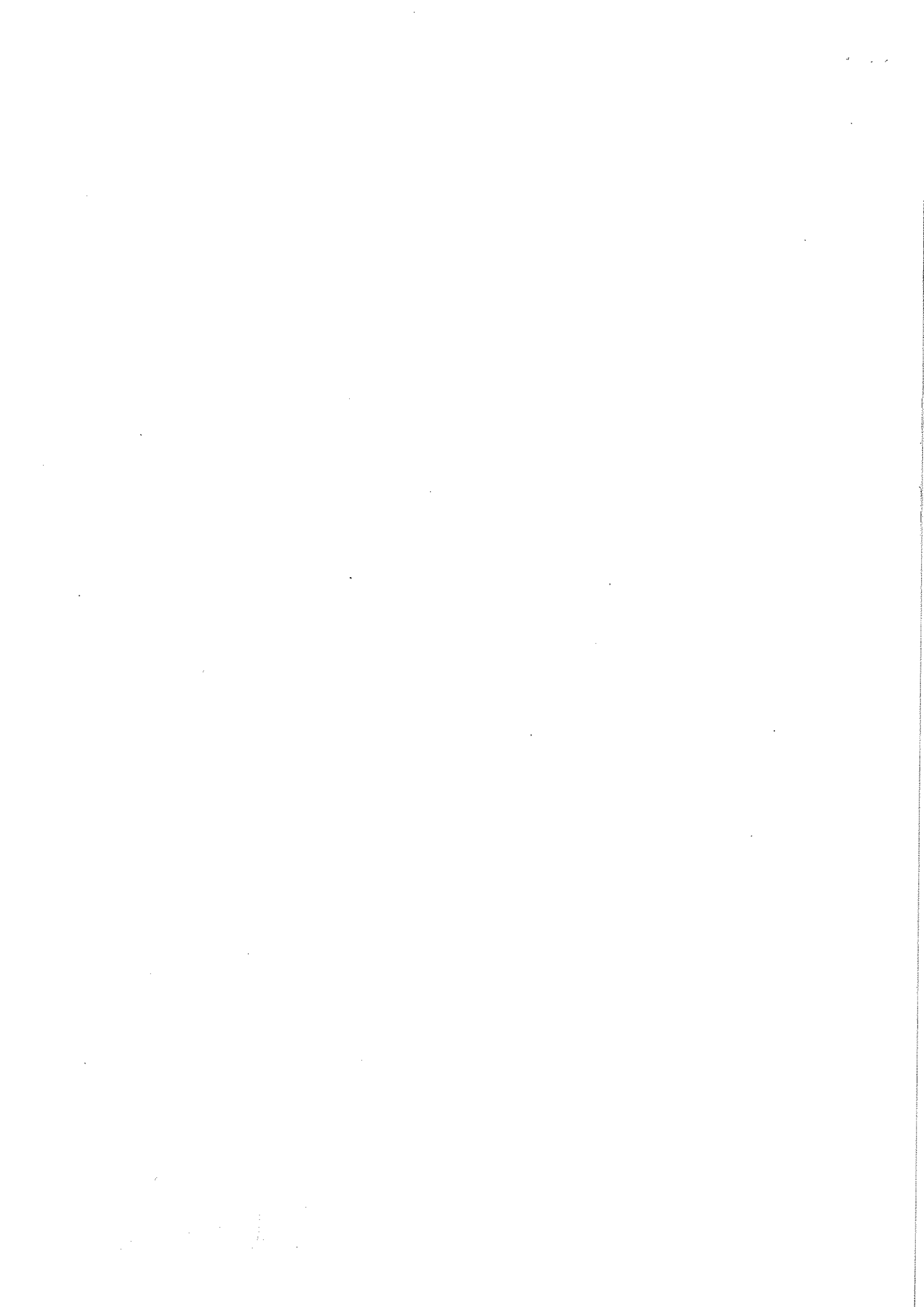
## 6. Ice Packs

The ice packs contain water and no salt added to it. Water is filled up to the marked level and it is allowed to freeze.

Q.4. Draw the chart of immunization schedule.

**National Immunization Schedule (NIS) for Infants, Children and Pregnant Women**

Vaccine	When to give	Dose	Route	Site
<b>For Pregnant Women</b>				
TT-1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT-2	4 weeks after TT-1*	0.5 ml	Intra-muscular	Upper Arm
TT- booster	If received 2 TT doses in a pregnancy within the last 3 yrs*	0.5 ml	Intra-muscular	Upper Arm
<b>For Infants</b>				
BCG	At birth or as early as possible till one year of age	0.1ml (0.05ml until 1 month age)	Intra-dermal	Left Upper Arm
Hepatitis B - Birth dose	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
OPV-0	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks (OPV can be given till 5 years of age)	2 drops	Oral	Oral
Pentavalent 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Rotavirus#	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	5 drops	Oral	Oral
IPV	Two fractional dose at 6 and 14 weeks of age	0.1 ml	Intra dermal two fractional dose	Intra-dermal: Right upper arm
Measles /MR 1 <sup>st</sup> Dose\$	9 completed months-12 months. (can be given till 5 years of age)	0.5 ml	Sub-cutaneous	Right upper Arm
JE - 1**	9 completed months-12 months.	0.5 ml	Sub-cutaneous	Left upper Arm
Vitamin A (1 <sup>st</sup> dose)	At 9 completed months with measles-Rubella	1 ml (1 lakh IU)	Oral	Oral
<b>For Children</b>				
DPT booster-1	16-24 months	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Measles/ MR 2 <sup>nd</sup> dose \$	16-24 months	0.5 ml	Sub-cutaneous	Right upper Arm
OPV booster	16-24 months	2 drops	Oral	Oral
JE-2	16-24 months	0.5 ml	Sub-cutaneous	Left Upper Arm
Vitamin A*** (2nd to 9th dose)	16-18 months. Then one dose every 6 months up to the age of 5 years.	2 ml (2 lakh IU)	Oral	Oral
DPT Booster-2	5-6 years	0.5 ml.	Intra-muscular	Upper Arm
TT	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm





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Registration No.: .....

## School of Health Care and Paramedics Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, 3<sup>rd</sup> Semester,

End-Sem. Examination

Course Code: SHP1310

Time: 2 Hours

Course Name: Basic Pediatrics

Max. Marks: 50

Instruction:

1. SECTION-A: Answer all questions from section A. Each question carries 01 mark
2. SECTION-B: Answer all questions from section B. Each question carries 04 marks
3. SECTION-C: Answer all questions from section C. Each question carries 06 marks

### Section – A

10X01 = 10 Marks

Q.1. Term development means:

- a) Qualitative change
- b) Quantitative change
- c) Maturation
- d) Both b and c

Q.2. Normal head circumference of newborn at birth range from:

- a) 33 – 37 cm
- b) 30 – 33 cm
- c) 35 – 38 cm
- d) 31 – 33 cm

Q.3. At birth infant are covered with grey, white matter called:

- a) Lanugo
- b) Mongolism spots
- c) Vernix caseosa
- d) White gravidarum

Q.4. The process of breast feeding is known as:

- a) Lactation
- b) Sucking
- c) Nesting
- d) Bottle feeding

Q.5. All are component of KMC except:

- a) Skin to skin contact
- b) Exclusive breast feeding
- c) Early discharge
- d) Weight gain

Q.6. The sequence of steps for neonatal resuscitation:

- a) ABCT
- b) TABC
- c) BACT
- d) CTAB

Q.7. At which age develop the social smile in the infants?

- a) 1 Month
- b) 4 Month
- c) 6 Month
- d) 2 Month

Q.8. Apgar score of a newborn immediately after the birth is checked within:

- a) 1 Minute
- b) 2 Minute
- c) 5 Minute
- d) 4 Minute





Q.9. Example of a live vaccine is:

- a) Measles
- b) Cholera
- c) Pertussis
- d) Hepatitis B

Q.10. Which milk more satisfy the baby's hunger?

- a) Transitional milk
- b) Hind milk
- c) Colostrum
- d) Fore milk

## Section – B

04X04 = 16 Marks

Q.1. Write down the ten rights of the child.

### Rights of the child

The United Nations adopted the "Declaration of the Rights of the Child", on 20th November, 1959, to meet the special needs of the child. India was a signatory to this declaration to give the child pride of place and to make the people aware of the rights and needs of children and duties towards them. The ten basic rights of the child are:

1. Right to develop in an atmosphere of affection and security and protection against all forms of neglect, cruelty, exploitation and traffic.
2. Right to enjoy the benefits of social security, including nutrition, housing and medical care.
3. Right to a name and nationality.
4. Right to free education.
5. Right to full opportunity for play and recreation.
6. Right to special treatment, education and appropriate care, if handicapped.
7. Right to be among the first to receive protection and Relief in times of disaster
8. Right to learn to be a useful member of society and to develop in a healthy and normal manner and in conditions of freedom and dignity.
9. Right to be brought up in a spirit of understanding tolerance, friendship among people, peace and universal brotherhood.
10. Right to enjoy these right, regardless of race, sex, religion, national or social origin.

Q.2. Describe the anthropometric assessment.

### Anthropometric assessment

<b>Weight</b>	The body weight of the neonate on an average is 2.5 – 3 kg. The neonate loses about 10% weight in first ten day of life. Thereafter babies gains about 25-30 gms/day.
<b>Length (head to heel)</b>	The average length of a neonate is 45-50cm.
<b>Head circumference</b>	Immediately after birth, moulding of skull may give inaccurate measurement of head circumference. So it should be measured after 48 hours of birth. The normal head circumference is 33-35 cm. it may be larger in case of hydrocephalus and smaller in microcephaly or craniostenosis (premature closure of sutures).
<b>Chest circumference</b>	It is about 31-33cm. less than head circumference.





Q.3. Draw the chart of "APGAR" Score.

Parameter	0	1	2
Heart Rate	Absent	<100	>100
Respiratory Effort	Absent	Irregular, Slow	Good, Strong cry
Muscle Tone	Limp	Some flexion of extremities	Well flexed
Reflex Irritability	No Response	Grimace	Cry, Sneezes
Colour	Blue, Pale	Body Pink, Extremities Blue	Completely Pink

Q.4. Write down the normal neurological assessment of newborn.

#### Neurological Assessment

**Muscle tone** This is assessed by three parameters posture, passive tone, and active tone.

**Joint Mobility** In term baby's joints are more flexible and relaxed

**Certain automatic reflexes** the presence of certain reflexes such as moro's reflex, pupillary reflex, blinking reflex, rooting and sucking reflex help in establishing neurological health of the neonate.

**Body movement** The neonate is not sleeping is active and alert. The baby moves extremities actively.

### Section – C

04X06 = 24 Marks

Q.1. Define breast feeding. Explain the factors inhibiting breast feeding.

#### Breast Feeding

Breast feeding is the most effective way to provide baby with a caring environment and complete nutrition. It meets the nutritional as well as emotional needs of the baby. UNICEF and WHO recommends exclusive breastfeeding to babies until six months of age.

#### Factors inhibiting breast feeding

##### Psychological factors

Shock, strong pain, anger, anxiety or worry can effect let down reflex. So the mother should be encouraged and supported to be calm, relaxed and have a positive attitude while breast feeding.

Early breast engorgement Some mother get hard, engorged and painful breast which makes feeding the baby difficult.

Flat and inverted nipple. If the nipple are flat. It is difficult for the baby to get hold of nipple and pull it into the mouth so sucking is interrupted.

Nipple may become sore due to long periods of vigorous sucking, sucking in bad position, engorged breast and oral thrush of baby. This can be prevented by teaching the mother about proper breast feeding technique during antenatal period.





## Q.2. Write down the principles of complementary feeding.

### Principles for Complementary Feeding

Breast milk alone is not sufficient to meet the nutritional requirements of the baby after 6 months. Also infants are developmentally ready to take other foods at about 6 months. By 6-8 months teeth eruption begins and the baby learns to bite and chew. The digestive system becomes mature enough to digest starch, protein and fat in non-milk diet. Very young infants push food out with their tongue, but by the age of 6-9 months they are able to hold food in their mouths. Hence, 6 months is the recommended age for weaning.

1.	Practice exclusive breast feeding from birth up to 6 months of age and introduce complementary foods after 6 months of age along with breast feeding.
2.	Continue frequent on-demand breast feeding until 2 years of age or beyond.
3.	Practice responsive (active) feeding applying the principles of psychosocial care. Feed infants slowly and patiently and encourage them to eat but do not force them. If the child refuses to eat any food, experiment with different food combinations, tastes and textures. Minimize distractions during meals if the child loses interest easily.
4.	Practice good hygiene and proper food handling to reduce the risk of diarrhoea.
5.	Start at 6 months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent <u>breastfeeding</u> .
6.	Gradually increase food consistency and variety as the infant grows older, adapting to the infant's requirements and abilities. Begin liquids at 6 months. By 8 months he can eat semi-solids and by 12 months he can eat solid foods as consumed by rest of the family members.
7.	Increase the number of times the child is fed complementary food, as the child gets older. A breastfed infant who is 6-8 months old needs 2-3 meals a day and at 9-23 months he needs 3-4 meals a day.
8.	Feed a variety of nutrient rich foods to ensure that all nutrient needs are met. Complementary foods should provide sufficient energy, protein, vitamins, iron and micronutrients. Complementary food should include animal products, dairy products, pulses, fruits, vegetables and oils.
9.	Give micronutrient rich complementary foods or vitamin and mineral supplements to the infant as needed.
10.	It is advisable to start one or two teaspoons of new food at first which should be given when baby is hungry, just before regular feeding, during day time. It may be continued for a few days until the child gets used to the same. Then the new food item may be started, one at a time.

## Q.3. How to immediate care of newborn at birth?

### Immediate newborn assessment

For assessment of the baby immediately after birth Apgar scoring is done. Apgar score is a quantitative method of assessing the infant's respiratory, circulatory and neurological status, it is done at 1 minute and 5 minute after birth. Maximum APGAR score is 10 and the score of more than 7 is considered satisfactory and indicates absence of difficulty in adjusting to extra uterine life. Score of 4 to 6 indicates moderate distress and score of 0 to 3 represent severe distress.





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Respiratory Effort	Absent	Irregular, Slow	Good, Strong cry
Muscle Tone	Limp	Some flexion of extremities	Well flexed
Reflex Irritability	No Response	Grimace	Cry, Sneezes
Colour	Blue, Pale	Body Pink, Extremities Blue	Completely Pink

Immediate new born assessment includes:

- Apgar scoring
- Recording of birth weight
- Umbilical cord is examined for presence of 2 umbilical arteries and 1 vein.
- Orifice counting and checking their patency.
- Mouth is checked for cleft palate and lip.
- Ears and nose.
- Anus is checked for imperforation or malformation.
- Urethra is checked for hypospadias or epispadias.
- Any visible lesions on back or front

Q.4. Draw the chart of immunization schedule.

Vaccine	When to give	Dose	Route	Site
<b>For Pregnant Women</b>				
TT-1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT-2	4 weeks after TT-1*	0.5 ml	Intra-muscular	Upper Arm
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DPT Booster-2	5-6 years	0.5 ml.	Intra-muscular	Upper Arm
TT	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm

K. K. K.

