

**BHARTIYA SKILL DEVELOPMENT UNIVERSITY****School of Health Care and Paramedics Skills****Session: 2021-22 Summer****B. Voc. Program, 3<sup>rd</sup> Semester****2<sup>nd</sup> In-Sem. Examination****Course Code: SHP1304****Time: 1 Hour****Course Name: Nutrition & Elimination II****Max. Marks: 20****Instructions:**

1. **SECTION-A:** 05 objective type questions, each question carries 01 mark
2. **SECTION-B:** 03 short answer type questions, each question carries 02 marks
3. **SECTION-C:** 03 essay type questions, each question carries 03 marks.

**SECTION-A****[5x1=Marks]**

1. **A deficiency of thiamine (Vitamin B1) in the diet cause...**
  - a. Osteopenia
  - b. Beri-beri
  - c. Protein malnutrition
  - d. Scurvy
2. **Deficiency of vitamin D causes...**
  - a. Night blindness
  - b. Beri- beri
  - c. Rickets
  - d. Anemia
3. **Which part of the bowel would a colostomy be placed?**
  - a. Ileum
  - b. Colon
  - c. Jejunum
  - d. None of above
4. **One gram of carbohydrate gives...**
  - a. Four calories
  - b. Six calories
  - c. Nine calories
  - d. Twelve calories
5. **What is the most common carbohydrate used for TPN?**
  - a. Dextrose
  - b. Fructose
  - c. Lactose
  - d. Potassium

**SECTION-B****[3x2=6 Marks]**

- 1) What do you mean by macronutrients?
- 2) Write down the nutrition for elderly people.
- 3) Define elimination. How to perform condom catheterization?

**SECTION-C****[3x3= 9 Marks]**

- 1) Describe the water-soluble vitamin.
- 2) Define liver cirrhosis. Write down the four causes, symptom and prevention of liver cirrhosis.
- 3) What do you mean eating disorder? Describe the prevention of eating disorder.



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School of Health Care and Paramedics Skills

Session: 2021-22 Summer

B. Voc. Program, 3<sup>rd</sup> Semester2<sup>nd</sup> In-Sem. Examination

Course Code: SHP1304

Time: 1 Hour

Course Name: Nutrition &amp; Elimination II

Max. Marks: 20

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**SECTION-B****[3x2=6 Marks]****1) What do you mean by macronutrients?**

Nutrients are environmental substances used for energy, growth, and bodily functions by organisms. Depending on the nutrient, these substances are needed in small amounts or larger amounts. Those that are needed in large amounts are called macronutrients. There are three macronutrients required by humans: carbohydrates (sugar), lipids (fats), and proteins. Each of these macronutrients provides energy in the form of calories.

For example:

- In carbohydrates, there are 4 calories per gram.
- In proteins, there are 4 calories per gram.



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- And in lipids, there are 9 calories per gram.

### 2) Write down the nutrition for elderly people.

#### Nutrition of elderly People

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 fibres** – 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.

### 3) Define elimination. How to perform condom catheterization?

Excretion is a process by which metabolic waste is eliminated from an organism. In vertebrates this is primarily carried out by the lungs, kidneys and skin. This is in contrast with secretion, where the substance may have specific tasks after leaving the cell. Excretion is an essential process in all forms of life. For example, in mammal's urine is expelled through the urethra, which is part of the excretory system. In unicellular organisms, waste products are discharged directly through the surface of the cell.

#### Put the Condom Catheter

- Wash your hands and your penis with soap and water. Rinse and dry your penis carefully.
- Inspect your penis to make sure it does not have any broken or reddened skin.
- Gently roll the condom over your penis. Leave 1 to 2 inches of the condom catheter at the end of your penis.
- Wrap the sheath holder around the condom at the base of your penis. Do not wrap the sheath holder too tightly because this may stop blood from going to your penis.
- Connect the condom catheter to the tube of the urine bag.
- If you are using a small leg bag, use the catheter leg strap that came with your kit to secure the urine bag to your leg just below your knee. Leave some slack in the tube so the catheter will not be pulled when you move your leg.
- If you are using your condom catheter at night, attach the catheter to the bedsheet with a safety pin. Make sure the safety pin goes around the tube and not through it.
- The urine collection bag must be placed so that your urine flows downward. If you are in bed, you may attach the collection bag to your bed under the mattress. If you are sitting in a chair, you may attach the urine bag to the chair below the cushion you sit on.

#### SECTION-C

[3x3= 9 Marks]

### 1) Describe the water soluble vitamin.

#### Water-soluble vitamins

Water-soluble vitamins do not stay in the body for long. The body cannot store them, and they are soon excreted in urine. Because of this, water-soluble vitamins need to be replaced more often than fat-soluble ones. Vitamin C and all the B vitamins are water soluble.



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<b>Vitamin B</b>	Chemical name: thiamine. <ul style="list-style-type: none"> <li>• It is water soluble.</li> <li>• Deficiency may cause beriberi and Wernicke-Korsakoff syndrome.</li> <li>• Good sources include: yeast, pork, cereal grains, sunflower seeds, brown rice, whole-grain rye, asparagus, kale, cauliflower, potatoes, oranges, liver, and eggs.</li> </ul>
<b>Vitamin B2</b>	Chemical name: Riboflavin <ul style="list-style-type: none"> <li>• It is water soluble</li> <li>• Deficiency may cause ariboflavinosis</li> <li>• Good sources include: asparagus, bananas, persimmons, okra, chard, cottage cheese, milk, yogurt, meat, eggs, fish, and green beans</li> </ul>
<b>Vitamin B3</b>	Chemical names: Niacin, niacin amide <ul style="list-style-type: none"> <li>• It is water soluble.</li> <li>• Deficiency may cause pellagra, with symptoms of diarrhea, dermatitis, and mental disturbance.</li> <li>• Good sources include: liver, heart, kidney, chicken, beef, fish (tuna, salmon), milk, eggs, avocados, dates, tomatoes, leafy vegetables, broccoli, carrots, sweet potatoes, asparagus, nuts, whole-grains, legumes, mushrooms, and brewer's yeast.</li> </ul>
<b>Vitamin B5</b>	Chemical name: Pantothenic acid <ul style="list-style-type: none"> <li>• It is water soluble.</li> <li>• Deficiency may cause paresthesia, or "pins and needles."</li> <li>• Good sources include: meats, whole-grains (milling may remove it), broccoli, avocados, royal jelly, and fish ovaries.</li> </ul>
<b>Vitamin B6</b>	Chemical names: Pyridoxine, pyridoxamine, pyridoxal <ul style="list-style-type: none"> <li>• It is water soluble.</li> </ul>

	<ul style="list-style-type: none"> <li>• Deficiency may cause anemia, peripheral neuropathy, or damage to parts of the nervous system other than the brain and spinal cord.</li> <li>• Good sources include: meats, bananas, whole-grains, vegetables, and nuts. When milk is dried, it loses about half of its B6. Freezing and canning can also reduce content.</li> </ul>
<b>Vitamin B7</b>	Chemical name: Biotin <ul style="list-style-type: none"> <li>• it is water soluble.</li> <li>• Deficiency may cause dermatitis or enteritis, or inflammation of the intestine.</li> <li>• Good sources include: egg yolk, liver, some vegetables.</li> </ul>
<b>Vitamin B9</b>	Chemical names: Folic acid, folinic acid <ul style="list-style-type: none"> <li>• It is water soluble.</li> <li>• Deficiency during pregnancy is linked to birth defects. Pregnant women are encouraged to supplement folic acid for the entire year before becoming pregnant.</li> <li>• Good sources include: leafy vegetables, legumes, liver, baker's yeast, some</li> </ul>

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	fortified grain products, and sunflower seeds. Several fruits have moderate amounts, as does beer.
<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>
<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>

**2) Define liver cirrhosis. Write down the four causes, symptom and prevention of liver cirrhosis.**

Cirrhosis is a late stage of scarring (fibrosis) of the liver caused by many forms of liver diseases and conditions, such as hepatitis and chronic alcoholism. Each time your liver is injured — whether by disease, excessive alcohol consumption or another cause — it tries to repair itself. In the process, scar tissue forms. As cirrhosis progresses, more and more scar tissue forms, making it difficult for the liver to function (decompensated cirrhosis). Advanced cirrhosis is life-threatening. The liver damage done by cirrhosis generally can't be undone. But if liver cirrhosis is diagnosed early and the cause is treated, further damage can be limited and, rarely, reversed.

### Symptoms

Cirrhosis often has no signs or symptoms until liver damage is extensive. When signs and symptoms do occur, they may include:

- Fatigue
- Easily bleeding or bruising
- Loss of appetite
- Nausea
- Swelling in your legs, feet or ankles (edema)
- Weight loss
- Itchy skin
- Yellow discoloration in the skin and eyes (jaundice)
- Fluid accumulation in your abdomen (ascites)
- Spiderlike blood vessels on your skin
- Redness in the palms of the hands



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- For women, absent or loss of periods not related to menopause
- For men, loss of sex drive, breast enlargement (gynecomastia) or testicular atrophy
- Confusion, drowsiness and slurred speech (hepatic encephalopathy)

Causes :

A wide range of diseases and conditions can damage the liver and lead to cirrhosis. Some of the causes include:

- Chronic alcohol abuse
- Chronic viral hepatitis (hepatitis B, C and D)
- Fat accumulating in the liver (nonalcoholic fatty liver disease)
- Iron buildup in the body (hemochromatosis)
- Cystic fibrosis
- Copper accumulated in the liver (Wilson's disease)
- Poorly formed bile ducts (biliary atresia)
- Alpha-1 antitrypsin deficiency
- Inherited disorders of sugar metabolism (galactosemia or glycogen storage disease)
- Genetic digestive disorder (Alagille syndrome)
- Liver disease caused by your body's immune system (autoimmune hepatitis)
- Destruction of the bile ducts (primary biliary cirrhosis)
- Hardening and scarring of the bile ducts (primary sclerosing cholangitis)
- Infection, such as syphilis or brucellosis
- Medications, including methotrexate or isoniazid

Prevention

Reduce your risk of cirrhosis by taking these steps to care for your liver:

- **Do not drink alcohol if you have cirrhosis** ○ If you have liver disease, you should avoid alcohol.
- **Eat a healthy diet** ○ Choose a plant-based diet that's full of fruits and vegetables. Select whole grains and lean sources of protein. Reduce the amount of fatty and fried foods you eat.
- **Maintain a healthy weight** ○ An excess amount of body fat can damage your liver. Talk to your doctor about a weightloss plan if you are obese or overweight.

**Reduce your risk of hepatitis** ○ Sharing needles and having unprotected sex can increase your risk of hepatitis B and C. Ask your doctor about hepatitis vaccinations

### 3) What do you mean eating disorder? Describe the prevention of 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



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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.

### Prevention

Although there's no sure way to prevent eating disorders, here are some strategies to help your child develop healthy-eating behaviors:

<b>Avoid dieting around your child</b>	Family dining habits may influence the relationships children develop with food. Eating meals together gives you an opportunity to teach your child about the pitfalls of dieting and encourages eating a balanced diet in reasonable portions.
<b>Talk to your child</b>	For example, there are numerous websites that promote dangerous ideas, such as viewing anorexia as a lifestyle choice rather than an eating disorder. It's crucial to correct any misperceptions like this and to talk to your child about the risks of unhealthy eating choices.
<b>Cultivate and reinforce a healthy body image</b>	in your child, whatever his or her shape or size. Talk to your child about selfimage and offer reassurance that body shapes can vary. Avoid criticizing your own body in front of your child. Messages of acceptance and respect can help build healthy self-esteem and resilience that will carry children through the rocky periods of the teen years.
<b>Enlist the help of your child's doctor</b>	At well-child visits, doctors may be able to identify early indicators of an eating disorder. They can ask children questions about their eating habits and satisfaction with their appearance during routine medical appointments, for instance. These visits should include checks of height and weight percentiles and body mass index, which can alert you and your child's doctor to any significant changes.

*K. Koceni*

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1. **SECTION-A:** 05 objective type questions, each question carries 01 mark
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**SECTION-A****[5x1=Marks]**

1. **A contracture is a ..... of tissue, affecting movement...**
  - a. Shorting
  - b. Lengthening
  - c. Decomposing
  - d. Build up
2. **Incomplete fracture where one side of the bone breaks and the other side bends; occurs only in children.**
  - a. Impact fracture
  - b. Greenstick fracture
  - c. Close fracture
  - d. Colle's fracture
3. **What are the most common risk factor for a fall?**
  - a. Weak muscles and poor balance
  - b. Inappropriate footwear
  - c. Consuming too much alcohol
  - d. All of above
4. **A cast is used in a fracture...**
  - a. To keep the bones in position while the fracture heals
  - b. To keep the fracture site warm
  - c. Both a and b
  - d. None of above
5. **Bone broken in the one place into two pieces...**
  - a. Single fracture
  - b. Comminuted fracture
  - c. Greenstick fracture
  - d. Hairline fracture

**SECTION-B****[3x2=6 Marks]**

- 1) How to transfer from bed to wheelchair?
- 2) Define fall. Explain the four extrinsic factors of fall.
- 3) Define contracture. Write down the forms of contracture.

**SECTION-C****[3x3= 9 Marks]**

- 1) Explain the mores fall scale.
- 2) What do you mean immobilization? Explain the types of assistance.
- 3) Define fracture. Explain the types of fracture.



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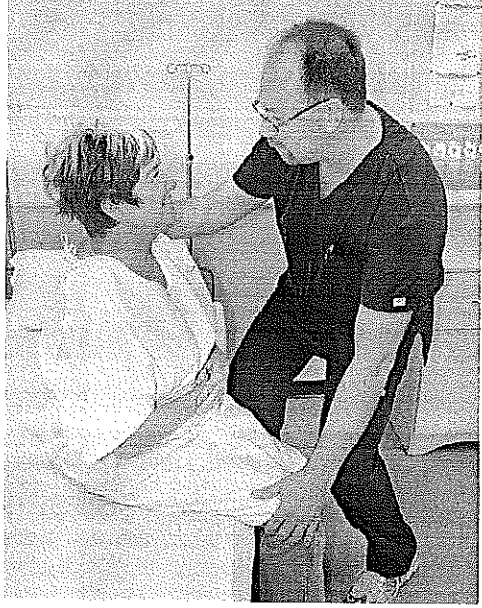
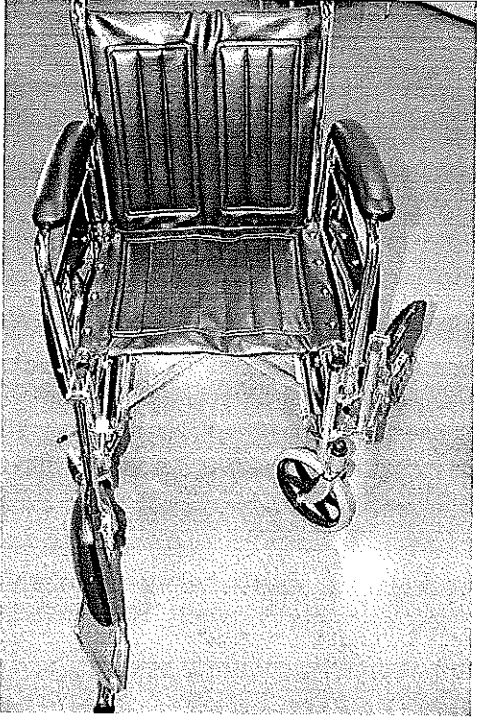
**SECTION-B****[3x2=6 Marks]****1) How to transfer from bed to wheelchair?**

Transfer from Bed to Wheelchair

Patients often need assistance when moving from a bed to a wheelchair. A patient must be cooperative and predictable, able to bear weight on both legs and take small steps. If any of these criteria are not met, a two-person transfer or mechanical lift is recommended. Always complete a patient risk assessment prior to all patient-handling activities. See Checklist 30 for the steps to transfer a patient from the bed to the wheelchair.

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



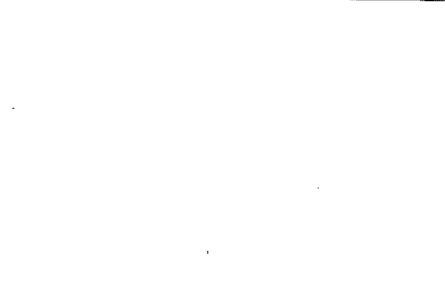
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Step	Content	Additional Information
1	<ul style="list-style-type: none"> <li>One health care provider is required.</li> </ul>	<ul style="list-style-type: none"> <li>The patient should be assessed as a 1-person assist.</li> </ul>
2	<ul style="list-style-type: none"> <li>Perform hand hygiene. Explain what will happen during the transfer and how the patient can help.</li> <li>Apply proper footwear prior to ambulation.</li> <li>This step provides the patient with an opportunity to ask questions and help with the positioning.</li> </ul>	 <p>A black and white photograph showing a healthcare provider in dark scrubs assisting an elderly patient in a white hospital gown. The provider is standing behind the patient, holding their arm to provide support and stability while they walk.</p>
3	<ul style="list-style-type: none"> <li>Lower the bed and ensure that brakes are applied.</li> <li>Place the wheelchair next to the bed at a 45-degree angle and apply brakes.</li> <li>If a patient has weakness on one side, place the wheelchair on the strong side.</li> <li><b>Ensure brakes are applied on the wheelchair.</b></li> </ul>	 <p>A black and white photograph of a standard hospital wheelchair. The wheelchair is shown from a front-three-quarter view, with its four wheels and the hand-operated brakes on the rear wheels clearly visible.</p>

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4	<ul style="list-style-type: none"> <li>• Sit patient on the side of the bed with his or her feet on the floor. Apply the gait belt snugly around the waist (if required).</li> <li>• Place hands on waist to assist into a standing position.</li> <li>• The patient's feet should be in between the health care provider's feet.</li> </ul>	
5	<ul style="list-style-type: none"> <li>• As the patient leans forward, grasp the gait belt (if required) on the side the patient, with your arms outside the patient's arms.</li> <li>• Position your legs on the outside of the patient's legs.</li> <li>• The patient's feet should be flat on the floor.</li> </ul>	

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<p>6</p>	<ul style="list-style-type: none"> <li>Count to three and, using a rocking motion, help the patient stand by shifting weight from the front foot to the back foot, keeping elbows in and back straight.</li> </ul>	
<p>7</p>	<ul style="list-style-type: none"> <li>Once standing, have the patient take a few steps back until they can feel the wheelchair on the back of their legs.</li> <li>Have patient grasp the arm of the wheelchair and lean forward slightly.</li> <li>Ensure the patient can feel the wheelchair on the back of the legs prior to sitting down.</li> </ul>	
<p>8</p>	<ul style="list-style-type: none"> <li>As the patient sits down, shift your weight from back to front with bent knees, with trunk straight and elbows slightly bent.</li> <li>Allow patient to sit in wheelchair slowly, using armrests for support.</li> </ul>	

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- This allows the patient to be properly positioned in the chair and prevents back injury to health care providers.



### 2) Define fall. Explain the four extrinsic factors of fall.

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.

### 3) Define contracture. Write down the forms of contracture.

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.

#### Forms of contracture

Based on the respective pulling direction, which can be more or less visible on a joint, different types of contra-forms are distinguished:

- Flexion (flexion) contracture, when e.g. the ankle is not sufficiently stretchable,
- Extension (extension) contracture, if e.g. the hip joint cannot be bent enough,



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- Adduction contracture, if not 90° abductible, e.g. the upper arm
- External rotation contracture in the hip joint, if e.g. the leg can only be minimally rotated inward.

### SECTION-C

[3x3= 9 Marks]

- 1) Explain the mores 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 <input type="checkbox"/> 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 <input type="checkbox"/> Impaired	0 10 20	
6. Mental status <input type="checkbox"/> Oriented to own ability <input type="checkbox"/> Forgets limitations	0 15	

- 2) What do you mean immobilization? Explain the types of assistance.

### 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.

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### 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
<b>Independent</b>	The patient can transfer independently and safely.
<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>Two-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>

3) Define fracture. Explain the types 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



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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.

*K. K. K.*

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School of Health Care and Paramedics Skills

Session: 2021-22 Summer

B. Voc. Program, 3<sup>rd</sup> Semester2<sup>nd</sup> In-Sem. Examination

Course Code: SHP1306

Time: 1 Hour

Course Name: Cardiology &amp; Neurology

Max. Marks: 20

Instructions:

1. **SECTION-A:** 05 objective type questions, each question carries 01 mark
2. **SECTION-B:** 03 short answer type questions, each question carries 02 marks
3. **SECTION-C:** 03 essay type questions, each question carries 03 marks.

**SECTION-A**

[5x1=5 Marks]

1. Which of these comprise of blood?
  - a. Red blood cell
  - b. White blood cell
  - c. Platelets and plasma
  - d. All of these
2. The SA node is situated in:
  - a. Left atrium
  - b. Right ventricle
  - c. Left ventricles
  - d. Right atrium
3. All of the following are neurotransmitter except:
  - a. Dopamine
  - b. GABA
  - c. Serotonin
  - d. Troponin
4. Respiratory centre is situated at which part of brain.
  - a. Medulla
  - b. Pons
  - c. Cerebellum
  - d. Thalamus
5. Early sign of Parkinson's disease is:
  - a. Tremors
  - b. Rigidity
  - c. Akinesia
  - d. Tachycardia

**SECTION-B**

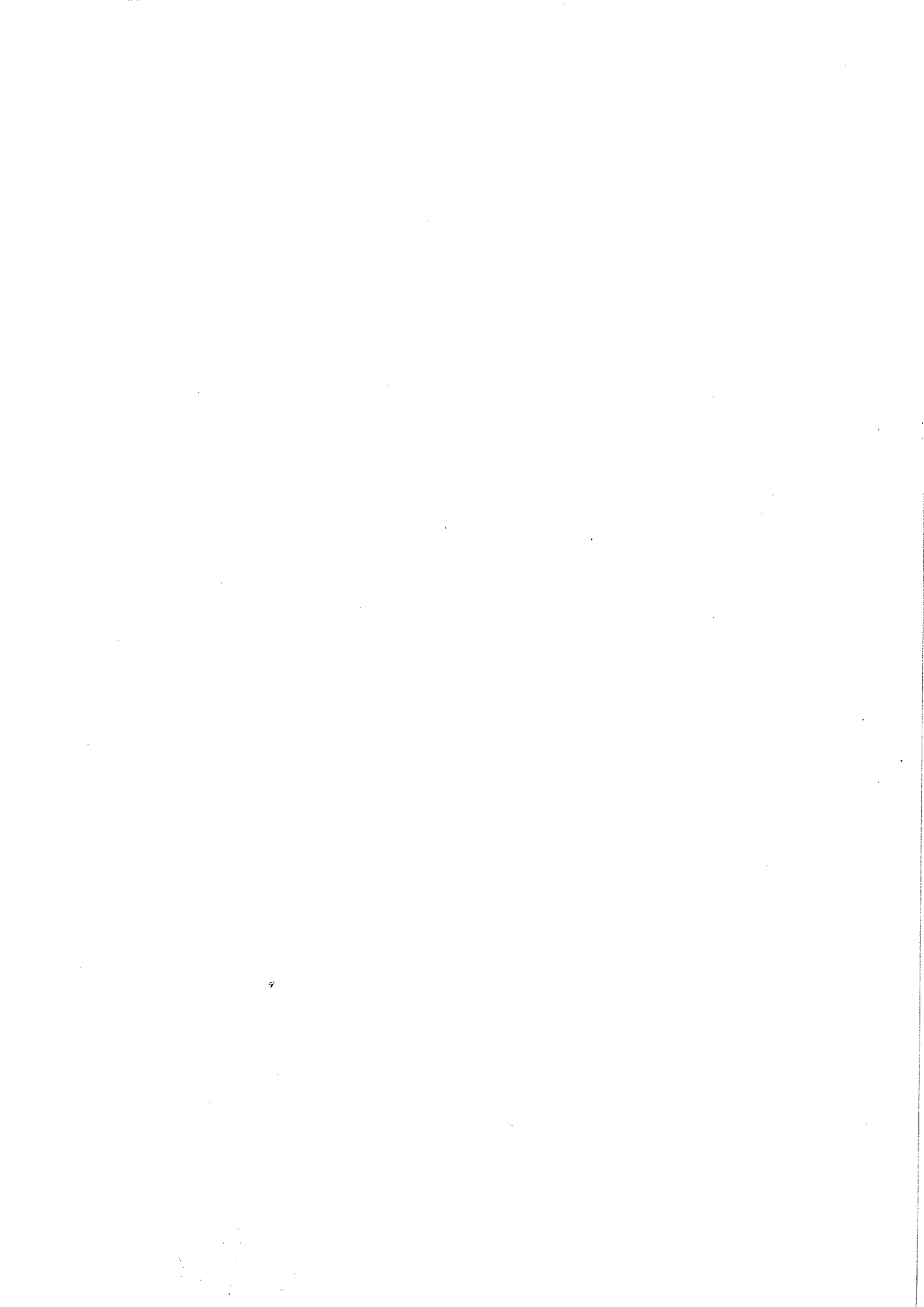
[3x2=6 Marks]

- 1) Define blood. Explain the plasma.
- 2) Write down the four differences between the systole and diastole.
- 3) What do you understand of neurotransmitter?

**SECTION-C**

[3x3= 9 Marks]

- 1) Explain the six cranial nerves.
- 2) Define multiple sclerosis. Explain the CSF.
- 3) What do you mean by angina pectoris? Explain the pathophysiology of angina pectoris.



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**SECTION-A****[5x1=Marks]**

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**SECTION-B****[3x2=6 Marks]**

- 1) Define blood. Explain the plasma.

**Blood**

Blood is a fluid that delivers necessary substances, including nutrients and oxygen, to all different parts and cells of the body. Blood also carries waste products away from the cells to other areas where they can be processed. The average adult has around 5 liters of blood. Blood is mainly composed of solid blood cells, which are suspended in the liquid plasma. The plasma consists of approximately 90% water, with the rest being made up of other dissolved substances (e.g. clotting proteins, sugars, hormones, and minerals). There are four main components of blood:



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## Plasma

Plasma is the liquid component of blood that the cells are suspended in. It accounts for round 50% of the total volume of blood and contains things like dissolved proteins, glucose, and platelets, as well as the blood cells themselves.

2) Write down the four differences between the systole and diastole.

### Systole

Systole is the phase in which both ventricles contract. When these two chambers contract, the muscles powerfully push the blood out into the blood vessels moving away from the heart. As noted before, the right ventricle pushes blood to the lungs, while the left ventricle pushes blood into the aorta, before it is distributed to the rest of the body. During this phase, the contractions cause an increase in the pressure within the blood vessels.

### Diastole

Diastole is the phase in which both ventricles are relaxed. When these two chambers are relaxed, they are refilled with blood from the each atrium, getting new blood to pump out from the heart and into the blood vessels when the cycle begins again. During this phase, no new blood is pumped into the blood vessels, and thus the pressure in the blood vessels is lower than it is during systole. The cycle of systole and diastole phases continues repeating and is called the cardiac cycle. A normal human heart beats around 60-70 times per minute when at rest.

3) What do you understand of neurotransmitter?

### Types of neurotransmitter

**Exciting neurotransmitters** – these neurotransmitters are responsible for the conduction of impulses from the pre-synaptic neuron to postsynaptic neurons eg- are acetylcholine & noradrenalin, glutamate, histamine.

**Inhibiting neurotransmitter** – These neurotransmitters are responsible for inhibition of the conduction of the conduction of impulses from the pre-synaptic neuron to the postsynaptic neuron eg- are dopamine & gamma amino butyric acid (GABA), serotonin (5-hydroxytryptamin)

## SECTION-C

[3x3= 9 Marks]

1) Explain the six cranial nerves.

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

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<b>VII</b>	Facial	mixed	These nerves are composed of both motor and sensory nerve fibres Facial expression and teste
<b>VIII</b>	Vestibulocochlear (auditory)	sensory	Balance and hearing
<b>IX</b>	Glossopharyngeal	mixed	Both sensory and motor Secretion of the saliva, swallowing and teste
<b>X</b>	Vagus: mixed		Secretion of the gland and sensory fibres convey impulses from the membranes.
<b>XI</b>	Accessory: motor		Turning the hand lifting the shoulder
<b>XII</b>	Hypoglossal: motor.		Contribute to swallowing and speech

### 2) Define multiple sclerosis. Explain the CSF.

#### Multiple sclerosis

In the clinical picture of multiple sclerosis nerve cells in the brain and spinal cord are damaged. This is due to a faulty immune reaction that leads to inflammation of nerve sheaths. MS usually progresses in the form of relapses and results in increasing paralysis, disturbances of the sensibility but also personality changes. Since the nerve cell damage can occur anywhere in the central nervous system, the symptoms are individually very different. The drug therapy is varied and aims at a reduction of the pacing rate.

#### Cerebrospinal fluid (CSF)

CSF consisting of:

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).

- 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.



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- 3) What do you mean by angina pectoris? Explain the pathophysiology of angina pectoris.

### 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.

### Pathophysiology

Angina is usually caused by atherosclerotic disease. Almost invariably, angina is associated with a significant obstruction of a major coronary artery. Identifying angina requires obtaining a thorough history. Several factors are associated with typical angina pain: Physical exertion, which can precipitate an attack by increasing myocardial oxygen demand. Effective treatment begins with reducing the demands placed on the heart and teaching the patient about the condition. Exposure to cold, which can cause vasoconstriction and an elevated blood pressure, with increased oxygen demand eating a heavy meal, which increases the blood flow to the mesenteric area for digestion, thereby reducing the blood supply available to the heart muscle (In a severely compromised heart, shunting of blood for digestion can be sufficient to induce angina pain.) Stress or any emotion-provoking situation, causing the release of adrenaline and increasing blood pressure, which may accelerate the heart rate and increase the myocardial workload peripheral vascular disease, arthritis, degenerative disk disease, physical disability, foot problems) that limit the patient's ability to exercise.

K. Komi