BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Electrical Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, I Semester,

1st In-Sem. Examination

Course Code: ELE1101 **Time: 1 Hour**

Course Name: Construction Electrician **Max. Marks: 20**

Instruction: Answer all questions from each and every section. Section A, each question carries one mark, section B, each question carries two marks and in section C, each question carries three marks. Scientific calculator is allowed.

Section – A

05X01 = 05 Marks

1. Which colour combination is used for single phase AC supply in India?
   a) Red, Blue, Green
   b) Red, Yellow, Blue
   c) Red, Black, Green
   d) Brown, Black, White

2. BIS stands for_____.
   a) Bureau of International Standard
   b) Bureau of Indian Standard
   c) British Information Standard
   d) None of these

3. What is the symbol of two-way switch?
   a)
   b)
   
   c)
   
   d)
   

4. The Ceiling rose is mainly used to _____.
   a) Control ceiling fan
   b) Make junction of electrical connection
   c) Control light and fan circuit
   d) Make junction of all appliances

5. The electrical wiring with 2 Two-way switches is recommended for_____.
   a) Bedroom
   b) Kitchen
   c) Hall and staircases
   d) Bathroom

Section – B

03X02 = 06 Marks

1. List any four hand tools used for electrical wiring.

2. Explain the push button switch with its symbol.

3. What is standard wire gauge(SWG)? Make conversion table from SWG to diameter and cross sectional area of wire.

Section – C

03X03 = 09 Marks

1. Write the recommendations of the NEC for mounting the accessories.
2. Explain the SPST, SPDT and DPST switches with symbol and neat circuit diagram.
3. What is the use of plug and socket? Brief any six types of plug and socket.

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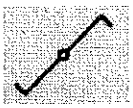
Answer Key

Section – A

05X01 = 05 Marks

1. (c) Red, Black, Green
2. (b) Bureau of Indian Standard
3. (c) 
4. (b) Make junction of electrical connection
5. (c) Hall and staircases

Section – B

03X02 = 06 Marks

1. Four Tools:

i. **Combination pliers:** These are multi-purpose pliers, combining gripping jaws with wire cutters. They can be used for gripping, compressing, bending, twisting, extracting and cutting various materials. The material used for pliers is steel alloys with additives such as vanadium and chromium.

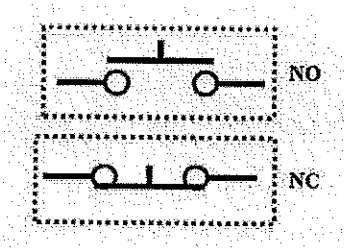
ii. **long-nose pliers:** It is a versatile tool that has long, tapering jaws with a pointed tip. Among their many uses are gripping, bending, and cutting small-gauge wire. They can reach into tight places that are inaccessible to other types of pliers. The material used for pliers is steel alloys with additives such as vanadium and chromium.

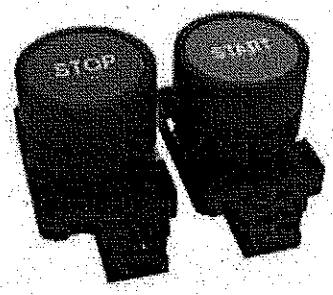
iii. **Diagonal pliers:** These are (or wire cutters or diagonal cutting pliers or diagonal cutters or side cutting pliers) are pliers intended for the cutting of wire (they are generally not used to grab or turn anything). The material used for pliers is steel alloys with additives such as vanadium and chromium.

iv. **An adjustable wrench:** It is also called an adjustable spanner is a tool, which can be used to loosen or tighten a nut or bolt. It has a "jaw" (the part where the nut or bolt fits), which is of adjustable size. Open the adjustable wrench by turning the screw mechanism. The range of this wrench is 0 to 24 mm.

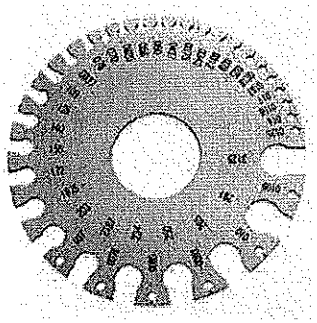
2. Push Button Switch: It is a momentary contact switch that makes or breaks connection as long as pressure is applied (or when the button is pushed).

- Generally, this pressure is supplied by a button pressed by someone's finger.
- This button returns its normal position, once the pressure is removed.
- The internal spring mechanism operates these two states (pressed and released) of a push button.
- It consists of stationary and movable contacts, of which stationary contacts are connected in series with the circuit to be switched while movable contacts are attached with a push button.
- Push buttons are majorly classified into normally open, normally closed and double acting push buttons as shown in the above figure.





3. S.W.G. (Standard Wire Gauge): A Instrument which is used for measuring the diameter (gauge) or Cross Area of wire.



SWG	Diameter (mm)	Cross-Sectional Area (mm^2)
1	7.620	45.6037
2	7.010	38.5989
3	6.401	32.1780
4	5.893	27.2730
5	5.385	22.7735
6	4.877	18.6793
7	4.470	15.6958
8	4.064	12.9717
9	3.658	10.5071
10	3.251	8.3019

Section – C

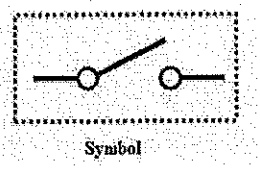
03X03 = 09 Marks

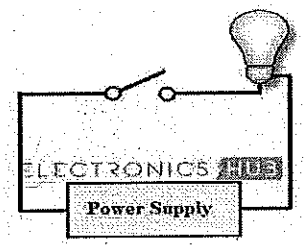
1. Recommendations of the NEC for mounting the accessories:

- All ceiling roses, brackets, pendants and accessories shall be mounted on substantial wooden blocks, having a depth not less than 4 cm.
- Where teak or hardwood boards are used for mounting switches regulators etc. these boards shall be well varnished with pure shellac on all sides (both inside and outside) irrespective of being painted to match the surroundings. The size of such boards shall depend on the number of accessories that could conveniently and neatly be arranged.
- No mounting of accessories shall be done within 2.5 cm of any edge of the panel of the board and no hole other than the holes by means of which the panel is fixed shall be drilled closer than 1.3 cm from any edge of the panel.
- A switchboard shall not be installed unless its bottom is 1.25 m above the floor except when the switchboard is enclosed in a box with locking arrangement.
- If the switchboards are recessed in the wall, the front shall be fitted with a hinged panel of teakwood or other suitable material, such as Bakelite, or with an unbreakable glass door in teak wood frame.
- Open type switchboards shall not be placed in the vicinity of storage batteries or exposed to chemical fumes.
- Switchboards shall not be erected above gas stoves or sinks, or within 2.5 m of any washing unit in the washing room.
- Unnecessary crossing of connections should be avoided between the apparatus and terminals, within the board.
- In a hinged type board, the incoming and outgoing cables shall be fixed at one or more points according to the number of cables on the back of the board leaving suitable space in between the cables.

2. Single Pole Single Throw Switch (SPST): This is the basic ON and OFF switch consisting of one input contact and one output contact.

- It switches a single circuit and it can either make (ON) or break (OFF) the load.
- The contacts of SPST can be either normally open or normally closed configurations.

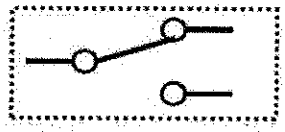




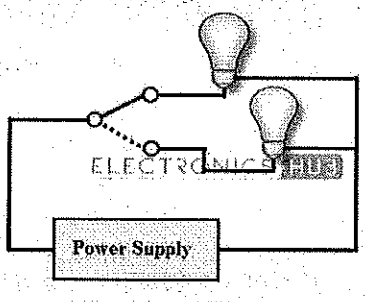
Single Pole Double Throw Switch (SPDT): This switch has three terminals, one is input contact and remaining two are output contacts.

- This means it consists one ON position and one OFF position at a time.
- In most of the circuits, these switches are used as changeover to connect the input between two choices of outputs.

The contact which is connected to the input by default is referred as normally closed contact and contact which will be connected during ON operation is a normally open contact.



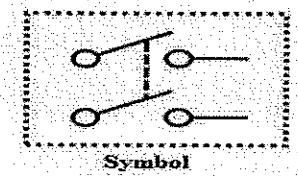
Symbol



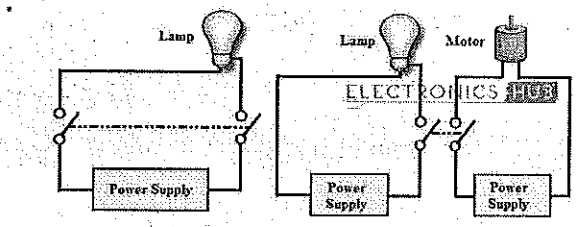
SPDT Switch Circuit

Double Pole Single Throw Switch (DPST): This switch consists of four terminals, two input contacts and two output contacts.

- It behaves like a two separate SPST configurations, operating at the same time.
- It has only one ON position, but it can actuate the two contacts simultaneously, such that each input contact will be connected to its corresponding output contact.
- In OFF position both switches are at open state.
- This type of switches is used for controlling two different circuits at a time.



Symbol



3. Plug and socket: AC power plugs and sockets connect electric equipment to the alternating current power supply in buildings and at other sites. Electrical plugs and sockets differ from one another in voltage and current rating, shape, size, and connector type. Different standard systems of plugs and sockets are used around the world.

Type A

- It is mainly used in the USA, Canada, Mexico & Japan.
- 2 pins
- not grounded
- 15 A
- almost always 100 – 127 V
- socket compatible with plug type A

Type B

- It is mainly used in the USA, Canada, Mexico & Japan.
- 3 pins

- grounded
- 15 A
- almost always 100 – 127 V
- socket compatible with plug types A & B

Type C

- It is commonly used in Europe, South America & Asia.
- 2 pins
- not grounded
- 2.5 A
- almost always 220 – 240 V
- socket compatible with plug type C

Type D

- It is mainly used in India.
- 3 pins
- grounded
- 5 A
- 220 – 240 V
- socket compatible with plug type D

(partial and unsafe compatibility with C, E & F)

Type E

- It is primarily used in France, Belgium, Poland, Slovakia & Czechia.
- 2 pins
- grounded
- 16 A
- 220 – 240 V
- socket compatible with plug types C, E & F

Type F

- It is used almost everywhere in Europe & Russia, except for the UK & Ireland.
- 2 pins
- grounded
- 16 A
- 220 – 240 V
- socket compatible with plug types C, E & F

Type G

- It is mainly used in the United Kingdom, Ireland, Malta, Malaysia & Singapore.
- 3 pins

- grounded
- 13 A
- 220 – 240 V
- socket compatible with plug type G

Type H

- It is used exclusively in Israel, the West Bank & the Gaza Strip.
- 3 pins
- grounded
- 16 A
- 220 – 240 V
- socket compatible with plug types C & H
  (unsafe compatibility with E & F)

Type I

- It is mainly used in Australia, New Zealand, China & Argentina.
- 2 or 3 pins
- 2 pins: not grounded / 3 pins: grounded
- 10 A
- 220 – 240 V
- socket compatible with plug type I

Type J

- It is used almost exclusively in Switzerland & Liechtenstein.
- 3 pins
- grounded
- 10 A
- 220 – 240 V
- socket compatible with plug types C & J

Type K

- It is used almost exclusively in Denmark & Greenland.
- 3 pins
- grounded
- 16 A
- 220 – 240 V
- socket compatible with plug types C & K
  (unsafe compatibility with E & F)

Type L

- It is used almost exclusively in Italy & Chile.
- 3 pins

- grounded
- 10 A & 16 A
- 220 – 240 V
- 10 A socket compatible with plug types C & L (10 A version) / 16 A socket compatible with plug type L (16 A version)

Type M

- It is mainly used in South Africa.
- 3 pins
- grounded
- 15 A
- 220 – 240 V
- socket compatible with plug type M

Type N

- It is used in Brazil and South Africa.
- 3 pins
- grounded
- 10 A & 20 A
- 100 – 240 V
- socket compatible with plug types C & N

Type O

- It is used exclusively in Thailand.
- 3 pins
- grounded
- 16 A
- 220 – 240 V
- socket compatible with plug types C & O

  (unsafe compatibility with E & F)

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School of Electrical Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, I Semester,

1st In-Sem. Examination

Course Code: ELE1102 **Time: 1 Hour**

Course Name: Electrical Drawing **Max. Marks: 20**

Instruction: Answer all questions from each and every section. Section A, each question carries one mark, section B, each question carries two marks and in section C, each question carries three marks. Scientific calculator is allowed.

Section – A

05X01 = 05 Marks

1. The 25 cm is equal to _____?
   a) 1 inch b) 250 mm
   c) 1 foot d) 2500 m
2. LED stands for_____.
   a) Low Energy Diode b) Light Emitting Diode
   c) Low Emission Density d) None of these
3. What is the size of A4 sheet in mm x mm?
   a) 210 x 297 b) 297 x 420
   c) 148 x 210 d) None of these
4. What do you understand by micro prefix used with the units in the drawings?
   a) 10^{-3} b) 10^{6}
   c) 10^{-6} d) 10^{3}
5. The dimension doesn't represent _____.
   a) Diameter b) Length
   c) Width d) Material

Section – B

03X02 = 06 Marks

1. What are the electrical symbols?
2. What do you understand by isometric drawing?
3. Make the table for 8 symbols, prefixes and multiples used with the units from deca to exa.

Section – C

03X03 = 09 Marks

1. Explain the continuous thin line, continuous thick line and dotted/dashed line.
2. What precautions should we take while giving dimension to the drawing?
3. Explain any six electrical symbols used in electrical drawing.

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B. Voc. Program, I Semester,

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Course Code: ELE1102 **Time: 1 Hour**

Course Name: Electrical Drawing **Max. Marks: 20**

Instruction: Answer all questions from each and every section. Section A, each question carries one mark, section B, each question carries two marks and in section C, each question carries three marks. Scientific calculator is allowed.

Answer Key

Section – A

05X01 = 05 Marks

1. (b) 250 mm
2. (b) Light Emitting Diode
3. (a) 210 x 297
4. (c) 10^{-6}
5. (d) Material

Section – B

03X02 = 06 Marks

1. **Electrical Symbols:** An electronic symbol is a pictogram used to represent various electrical and electronic devices (such as wires, batteries, resistors, etc.) in a schematic diagram of an electrical or electronic circuit.

2. Isometric Drawing: The representation of the object in below fig is called an isometric drawing. In an isometric drawing, the object's vertical lines are drawn vertically, and the horizontal lines in the width and depth planes are shown at 30 degrees to the horizontal. When drawn under these guidelines, the lines parallel to these three axes are at their true (scale) lengths. Lines that are not parallel to these axes will not be of their true length.

3. Table from Deca to Exa:

Multiple	*Prefix*	*Symbol*
10	deca	da
10^2	hecto	h
10^3	kilo	k
10^6	mega	M
10^9	giga	G
10^{12}	tera	T
10^{15}	peta	P
10^{18}	exa	E

Section – C

03X03 = 09 Marks

1. Lines:

i. Continuous Thick line

Continuous Thick Lines are used to indicate visible outlines. In Drawing Lines are with dark it is representing the actual image of drawing

ii. Continuous Thin line

Continuous Thin lines are used for the Dimensions line, Leader lines, Fictitious line, hatching lines (Hatching lines when drafting of model drawing to show as a sectioning) and also for the Imaginary intersection of surfaces, Revolved sections, Adjacent parts

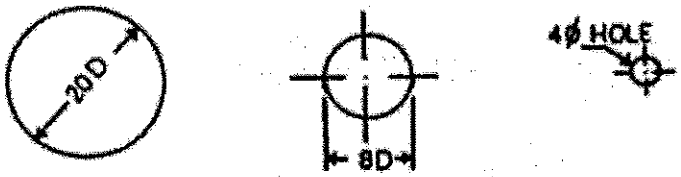
iii. Dotted/dashed line:

Dotted or dashed lines therefore have an association with the temporary, the invisible, the hidden, the not finished or not solid. In the image above a dotted line is used to represent what is hidden beneath the body. However, the dashed or dotted line can also be used to represent movement.

2. Precautions while dimensioning:

(i) **Dimension lines in a drawing should be placed as far as possible outside the outline of a view.**
(ii) **All dimensions should be placed above their respective dimension lines, and normal to the lines, such that these can be easily read from the bottom or right hand side of the drawing sheet.**
iii) **Dimension lines should not cut each other. Smaller dimensions should be placed first, that is, the dimensions should be marked in the ascending order.**

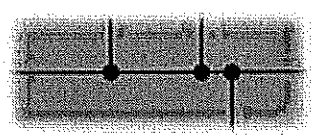
(iv) **Dimension lines are never shown dotted.**
(v) **Dimensions must only be given once and not be repeated on other views.**
(vi) **Holes are dimensioned by stating their diameters.**
There are usually three representations as follows:



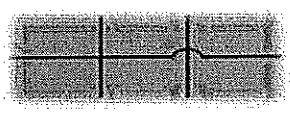
(a) (b) (c)

3. Symbols:

i. Wire: A wire is a single flexible strand or rod of metal. Wires are used to pass current very easily from one part of the circuit to another.

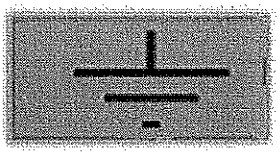


Wire Junction

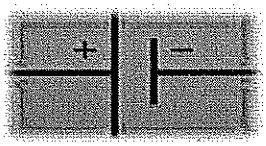


Wire Not connected

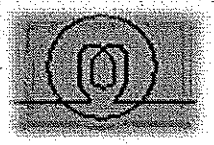
ii. Ground: Ground or earth can refer to the reference point in an electrical circuit from which voltages are measure. A common return path for electric current or a direct physical connection to the Earth.



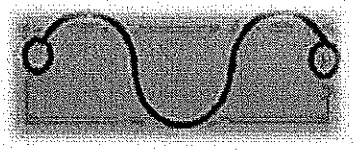
iii. Cell: It supplies electrical energy. The larger terminal (on the left) is positive (+) while the smaller (on the right) is negative (-). A single cell is often called a battery, but strictly the battery is two or more cell joined together.



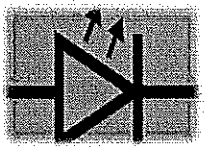
iv. Bulb: It provides the light when electric current passes through it. A light bulb produces light with a filament wire heated to a high temperature by an electric current passing through it until it glows.



v. Fuse: A fuse is a special kind of resistor that acts as short circuit (0 resistances) unless the current exceeds the rated value. If the current exceeds a rated value, the fuse blows and acts as an open circuit (an infinite resistance).



vi. LED: LED stands for (light emitting diode). It is a semi- conductor light source. LED's are used in general lightning, traffic signals and are used in advance communication technology.



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School of Electrical Skills

Session: 2021-22 (Summer Semester)

B. Voc. Program, 1st Semester,

1st In-Sem. Examination

Course Code: ELE 1103 **Time: 1 Hour**

Course Name: Basic Electrical Engineering **Max. Marks: 20**

Instruction: Answer all questions from section A, each question carries one mark. Answer all questions from section B, each question carries two marks. Answer all questions from section C, each question carries three marks. Scientific/Normal calculator is allowed.

Section – A

05X01 = 05 Marks

1. Unit of Energy is:

   (a) Kwh (b) Joules (c) Watt-Second (d) All of these

2. The atomic number of an element is equal to:
   (a) Number of protons (b) Number of electrons
   (c) Both (a) and (b) (d) Number of neutrons

3. The rate of flow of an electric charge is known as:
   (a) Electric potential (b) electric conductance
   (c) electric current (d) none of these

4. The relation between current and potential difference was discovered by:
   (a) Newton (b) Ampere (c) Volta (d) Ohm

5. Current is measured in which units:
   (a) Coulomb (b) Ampere
   (c) Voltage (d) None of these

Section – B

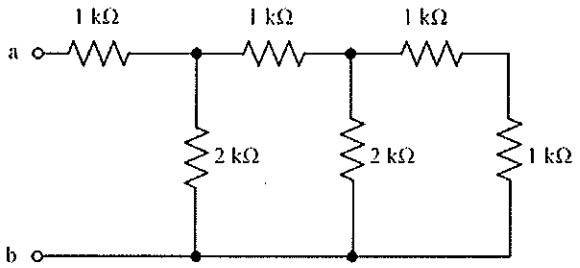
03X02 = 06 Marks

1. What is the mass number of an atom which contains 28 protons, 28 electrons, and 34 neutrons?
2. Define Electromotive force (EMF).
3. State the Ohm's law.

Section – C

03X03 = 09 Marks

1. Calculate the number of electrons, protons and neutrons of O_{16}^{8} .
2. Write the difference between Conductor and Insulator.
3. Find the equivalent resistance across a-b terminals:



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Registration No.: .....

School of Electrical Skills
Session: 2021-22 (Summer Semester)
B. Voc. Program, 1st Semester,
1st In-Sem. Examination
Answer Key

Course Code: ELE 1103 **Time: 1 Hour**
Course Name: Basic Electrical Engineering **Max. Marks: 20**

Section – A

05X01 = 05 Marks

1.Unit of Energy is: (a) Kwh

2.The atomic number of an element is equal to:(a) Number of protons

3.The rate of flow of an electric charge is known as: (c) electric current
4.The relation between current and potential difference was discovered by:(d) Ohm
5.Current is measured in which units: (b) Ampere

Section – B

03X02 = 06 Marks

1. What is the mass number of an atom which contains 28 protons, 28 electrons, and 34 neutrons?

Ans: 28+34 = 62

2. Define Electromotive force (EMF).

Ans: In an electric circuit there should be a device which forces the charge to move around the circuit. Thus the cause developed by cell or battery which forces the current to flow is called EMF.

3. State the Ohm's law.

Ans: The physical conditions like temperature, pressure etc. of a conductor remain same, the current flowing through it is directly proportional to the potential difference across it.

Section – C

03X03 = 09 Marks

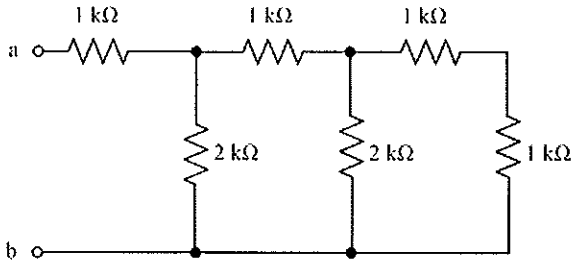
1. Calculate the number of electrons, protons and neutrons of O_{16}^{8} .

Ans: electron = 8 ; Protons = 8 ; Neutrons = 16-8 = 8

2. Write the difference between Conductor and Insulator.

Ans: A conductor is a material that allows to flow of current ex. Gold, copper. Its resistivity is very low. Its use to make wires and cables for carrying electric current.
An insulator is a material that does not allow the flow of current ex. Rubber, glass, wood, plastic. Its resistivity is very high. Its use for prevention of electric short between cables in circuit.

3. Find the equivalent resistance across a-b terminals:



Ans: R = 1 + ((((1+1) || 2) + 1) || 2) = 2 k ohm

Registration No.: .....

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Electrical Skills
Session: 2021-22 (Summer Semester)
B. Voc. Program, 1st Semester,
1st In-Sem. Examination

Course Code: ELE1104 **Time: 1 Hour**
Course Name: Maintenance Technician Electrical **Max. Marks: 20**

Instruction: All questions are compulsory. Each question carries one mark in section A. Each question carries two marks in section B. Each question carries three marks in section C. Scientific calculator is allowed.

Section – A

05x01 = 05 Marks

1. Which of the following is used for hammering soft materials:
   (a) Ball Peen Hammer
   (b) Mallet
   (c) Chisel
   (d) None of the above

2. Combination plier is used for:
   (a) Twisting (b) Holding (c) Cutting (d) All of these

3. The tool used for removing fine amounts of material from a workpiece is called:
   (a) File
   (b) Chisel
   (c) Handsaw
   (d) None of these

4. The tool used for removing insulation of cables is called _____

5. The tool used for checking horizontal and vertical levels of a surface or an object is called _____

Section – B

03x02 = 06 Marks

Q.1. What is the difference between mallet and cross peen hammer?
Q.2. Write down the names of 10 electrician hand tools which are used for house wiring.
Q.3. List any two electrician tools and briefly describe their use.

Section – C

03x03 = 09 Marks

Q.1. Define preventive maintenance. What are the advantages of preventive maintenance?
Q.2. What are various items used in Preventive Maintenance. List out any 15 of them.
Q.3. Explain in brief 7 steps of troubleshooting?

Answer Key (ELE 1104)

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

School of Electrical Skills
Session: 2021-22 (Summer Semester)
B. Voc. Program, 1st Semester,
1st In-Sem. Examination

Course Code: ELE1104
Course Name: Maintenance Technician Electrical **Max. Marks: 20**

Section – A

05x01 = 05 Marks

Ans. 1: (b)
Ans. 2: (d)
Ans. 3: (a)
Ans. 4: (Cable Stripper)
Ans. 5: (Spirit Level)

Section – B

03x02 = 06 Marks

Ans. 1: - Mallet is used for beating soft metals and wooden pieces/jobs while the hammer is used for putting gitti in walls, fix clips into walls and beating hard metals that require more force.

Ans. 2: -1. Combination plier 2. Nose plier 3. Side cutting plier 4. Wire stripper
5. Cable stripper 6. Crimping tool 7. Pipe cutter 8. Step drill bit
9. Mallet 10. Flat file

Ans. 3: - 1. Adjustable plier: This plier is used for turning and holding nuts and bolts, gripping irregularly shaped objects and clamping materials. It also contains an adjustable jaw which can be adjusted according to the requirement of the job.

2. Crimping tool: It is a tool used to join two pieces of metal by deforming one or both of them in a way that causes them to hold each other. In other words, its used to join lugs in wires.

Section – C

03x03 = 09 Marks

Ans. 1: - Preventive maintenance can be described as maintenance of equipment or systems before fault occurs. Preventive maintenance is conduct to keep equipment working or extend the life of equipment. Preventive maintenance is applied by technician's teams and managers before any breakdown or failure occurs. Its aim is to reduce the probability of breakdown or degradation of a piece of equipment, component or spare part. In order to implement such maintenance, teams have to take the part's history into consideration and keep track of the past failures. They are therefore able to identify the time ranges during which a piece of equipment might break down.

Advantage of Condition based Preventive maintenance are:

1. CBM is performed while the asset is working, which lessens the chances of disruption to normal operations
2. Reduces the cost of asset failures
3. Improves equipment reliability
4. Minimizes time spent on maintenance
5. Minimizes overtime costs by scheduling the activities
6. Minimizes requirement for emergency spare parts
7. Improves worker safety
8. Reduces the chances of collateral damage to the system

Ans. 2: -

1. All lights working properly
2. Glassware conditions
3. Fixture hardware conditions
4. Wire connections
5. Ballast conditions
6. Broken/Damaged wires
7. Installation according to standards
8. Number of exits in case of emergency
9. Presence of any foreign material near systems
10. Space for hands for maintenance purpose
11. Hand space occupied by foreign material/used for storage
12. Outlet/inlet cord conditions
13. Distribution box condition
14. Use of proper tags at dangerous locations
15. Space for illumination near maintenance places.

Ans.3: -

Troubleshooting: It is the process of analyzing the behavior or operation of a faulty circuit to determine what is wrong with the circuit. It then involves identifying the defective component(s) and repairing the circuit. Depending on the type of equipment, troubleshooting can be a very challenging task. Sometimes problems are easily diagnosed and the problem component easily visible

Seven-step of Electrical Troubleshooting

1. **Gather the information.**
2. **Understand the malfunction.**
3. **Identify which parameters need to be evaluated.**
4. **Identify the source of the problem.**
5. **Correct/repair the component.**
6. **Verify the repair.**
7. **Perform root cause analysis.**

1.**Gather information:** Gathering information is a logical first step in any troubleshooting endeavour.

2.**Understand the malfunction**: Understanding the malfunction means that you understand how or what the process is and what portion of the process is operating incorrectly.

3. **Identify which parameters need to be evaluated:** Identifying which parameters need to be evaluated requires a clear understanding of the discrepancy and which signals affect the suspected component. Which input signals control the component? What is the expected output from the suspect circuit? Is there a timing delay, sequence, or set point that can be verified?

4. **Identify the source of the problem:** Identifying the source of the problem requires the technician to isolate components and evaluate circuit parameters, to isolate the circuit by group when dealing with a complicated circuit (half-step approach), and to identify the malfunctioning component using the recorded data.

5. **Correct/repair the component:** Correct or repair the component identified as damaged based on the recorded data. Perform the required repairs to the circuit. Completing step 5 can range from simple adjustments to a complete component replacement.

6. **Verify the repair:** Verify the repair after completion. Ensure the equipment is operating as designed. Perform another round of testing to verify the equipment is in fact running correctly and that no other discrepancies exist.

7. **Perform root cause analysis**: Performing root cause analysis, even though mentioned last, began in the first step of the troubleshooting process. You should use the knowledge gained throughout the troubleshooting process in determining what could have possibly caused the component to fail.

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

School of Electrical Skills (~~BET~~)

Session: 2021-22 (Summer Semester)

B. Voc. Program, 1st Semester,

1st In-Sem. Examination

Course Code: ELE1105 **Time: 1 Hour**

Course Name: Electrical Safety **Max. Marks: 20**

Instruction: Answer all questions from section A. Each question carries one mark. Answer all questions from section B, each question carries two marks. Answer all questions from section C, each question carries three marks. Scientific calculator is allowed.

Section – A

05X01 = 05 Marks

1. Do not used appliance, if

   (a) Damage (b) wire exposed (c) working properly (d) both a and b

2. What type of protection is needed when you are exposed to hazards from flying particles?

   (a) Eye protection (b) Face protection (c) Ear protection (d) Both (a) and (b)

3. What is the full form of CPR?

   (a) Cardiopulmonary resuscitation (b) Cardio resuscitation

   (c) Certified resuscitation (d) Cardiopulmonary resume

4. What is the first stage of risk assessment?

   (a) Exposure assessment (b) Hazard identification

   (c) Toxicity study (d) Risk characterization

5. Safety signs provide

   (a) Information about hazardous areas (b) Cautions information

   (c) Warnings (d) All of the above

Section – B

03X02 = 06 Marks

1. What is first aid?
2. Write down the classification of hazards.
3. Write down the name of different types of accidents.

Section – C

03X03 = 09 Marks

1. What is the difference between hazards and risk?
2. Draw the flow chart of first aid.
3. Write down the need of personal protective equipment's.

Answer Key Set – A

Course Code: ELE1105,

Course Name: Electrical Safety

School of Electrical Skills, Session: 2020-21 (Summer Semester)

B. Voc. Program, 1st Semester, 1st In-Sem. Examination

Section – A

05X01 = 05 Marks

1. d
2. d
3. a
4. b
5. d

Section – B

03X02 = 06 Marks

1. What is first aid?

   First aid is the first and immediate assistance given to any person suffering from either a minor or serious illness or injury, with care provided to preserve life, prevent the condition from worsening, or to promote recovery.

2. Write down the classification of hazards

   Biological – bacteria, viruses, insects, plants, birds, animals, and humans, etc.,
   Chemical – depends on the physical, chemical and toxic properties of the chemical,
   Ergonomic – repetitive movements, improper set up of workstation, poor design of equipment, workstation design, (postural) or workflow, manual handling, repetitive movement. Etc.,
   Physical – Slippery floors, objects in walkways, unsafe or misused machinery, excessive noise, poor lighting, fire. radiation, magnetic fields, pressure extremes (high pressure or vacuum), noise, etc.,
   Psychological – Shift work, workload, dealing with the public, harassment, discrimination, threat of danger, constant low-level noise, stress. violence, etc.,
   Safety – slipping/tripping hazards, inappropriate machine guarding, equipment malfunctions or breakdowns.

3. Write down the name of different types of accidents

   - Accidents at Work. You may have been involved in an accident whilst at work.
   - Slip/Trip Claims (public liability)
   - Industrial Diseases and Illnesses.
   - Road Traffic Accidents
   - Accidents Abroad
   - Accidents involving Animals
   - Sports Related Injuries.
   - Clinical Negligence.

Answer Key Set – A

Course Code: ELE1105,

Course Name: Electrical Safety

School of Electrical Skills, Session: 2020-21 (Summer Semester)

B. Voc. Program, 1st Semester, 1st In-Sem. Examination

Section – C

03X03 = 09 Marks

1. What is the difference between hazards and risk

Hazards: A hazard is a potential source of harm. Substances, events, circumstances can constitute hazards when their nature would allow them, even just theoretically, to cause damage to health, life, property, or any other interest of value.
Risk: An electrical risk is a risk to a person of death, shock or other injury caused directly or indirectly by electricity.

Answer Key Set – A

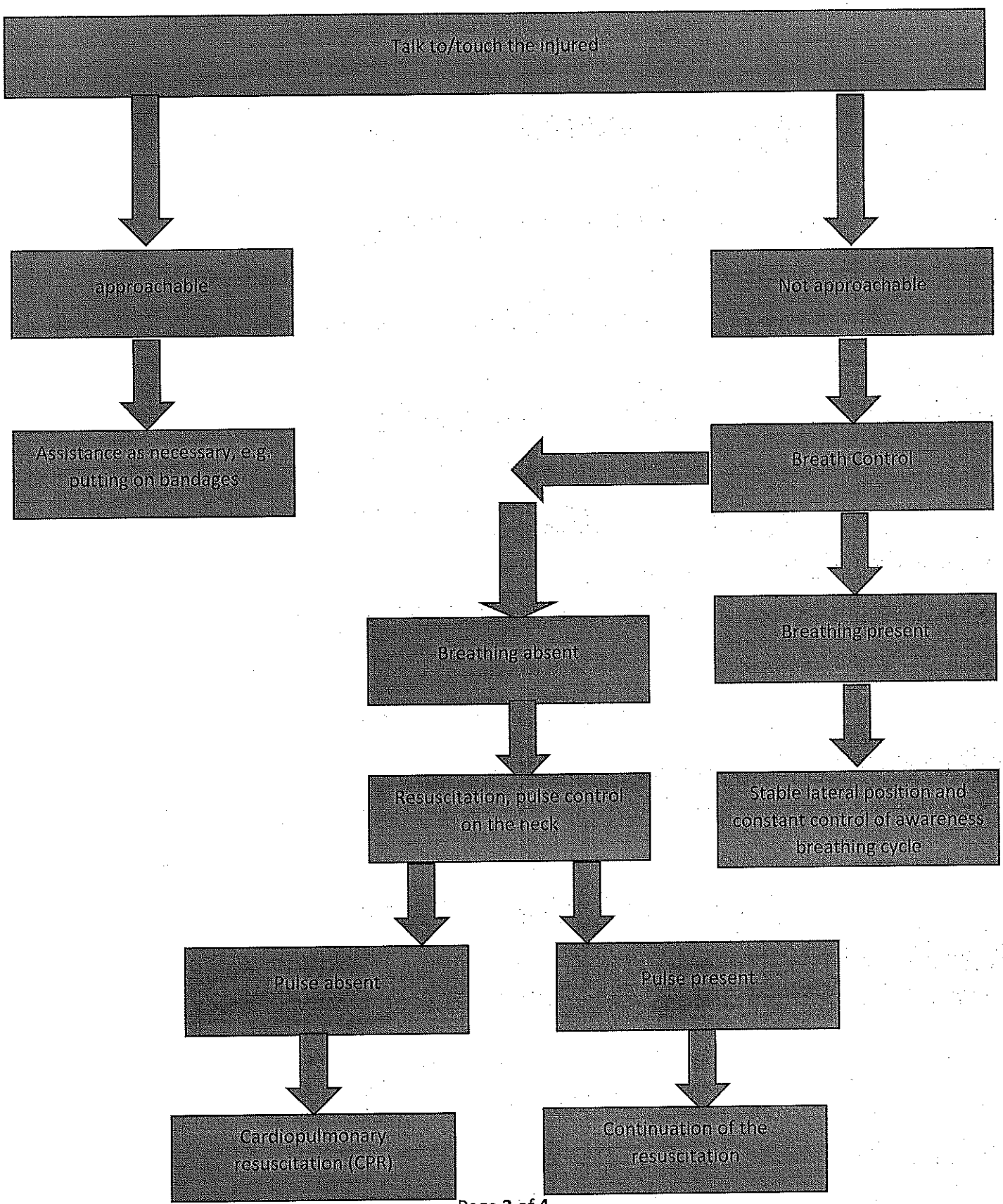
Course Code: ELE1105,

Course Name: Electrical Safety

School of Electrical Skills, Session: 2020-21 (Summer Semester)

B. Voc. Program, 1st Semester, 1st In-Sem. Examination

2. Draw the flow chart of first aid.



Answer Key Set – A

Course Code: ELE1105,

Course Name: Electrical Safety

School of Electrical Skills, Session: 2020-21 (Summer Semester)

B. Voc. Program, 1st Semester, 1st In-Sem. Examination

3 Write down the need of personal protective equipment's

Making the workplace safe includes providing instructions, procedures, training and supervision to encourage people to work safely and responsibly.

Even where engineering controls and safe systems of work have been applied, some hazards might remain. These include injuries to:

the lungs, eg from breathing in contaminated air

the head and feet, eg from falling materials

the eyes, eg from flying particles or splashes of corrosive liquids

the skin, eg from contact with corrosive materials

the body, eg from extremes of heat or cold

PPE is needed in these cases to reduce the risk