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**School of Electrical Skills**  
**First semester, first In-semester Examination**  
**Winter semester, B.Voc Program, Session:2018-19**

Course code: ELE 1001

Time: 1 Hour

Course name: Construction electrician

Max. Marks: 20

**Solution:**

**Section – A** (5×1 = 5)

1. B
2. C
3. C
4. B
5. A

**Section – B** (3×2 = 6)

1. Wire, Cashing, lugs, Switch, Socket and lamp.
2. Voltage source, Resistor, connecting wires and load.
3. AC Supply – Alternating current supply. Ex: Coming from transformer or form } 1  
substation.
- DC Supply – Direct current supply. Ex: Battery, Dry cell. } 1

**Section – C** (3×3 = 9)

- |                                   |   |     |
|-----------------------------------|---|-----|
| 1. Plastic wire 2.5 sqmm;         | For light fixtures motors, distributors.            | } 1 |
| Plastic wire 16 sqmm:             | For earthing, big machines Installation.            |     |
| Multicore wire 2c x 1.5 sqmm:     | For small household appliances and office.          | } 1 |
| Multicore wire 3c x 3.5 sqmm:     | For household appliances and office.                |     |
| Multicore wire 5c x 1.5 sqmm:     | For all installations with 3-phases, 3-phase-motor, | } 1 |
| Speaker cable 1.5 sqmm:           | Only for low voltage < 50 V                         |     |
| Telephone cable 2pair x 0.5 sqmm: | Only for Telephone Installation                     | } 1 |
| LAN-cable 4 Pair X 23 CAT-6:      | For Communication and Network installation          |     |
| Co-Axial cable:                   | Only for TV-Installations                           |     |
| CCTV cable 3 core x 0.5 mm2:      | For cam installations                               |     |

**School of Electrical Skills**  
**First semester, first In-semester Examination**  
**Winter semester, B.Voc Program, Session:2018-19**

**Course code: ELE1001**

**Time: 1 Hour**

**Course name: Construction electrician**

**Max. Marks: 20**

2. Combination plier, with pipe grip, side cutter and Insulated handle. } 1  
Long nose plier, Screwdriver flat (minus) and Philipps (plus), Neon tester, Electrician Knife, } 1  
Hammer ball peen, Hacksaw, files, level detector and Mallet, wire stripper, cable stripper, side } 1  
cutter, pointed plier,
3. **Conductors** – A conductor is a material that has many free electrons permitting electrons to } 1  
move through it easily. Generally, conductors have incomplete valance shells of one, two or three  
electrons.  
Ex: copper, aluminum, gold, silver, zinc, brass, iron etc } 0.5
- Insulators** – An insulator is a material that has few or no free electrons so, they resist the flow of } 1  
electrons. Generally, Insulators have full valance shells of five, six or seven electrons.  
Ex: rubber, plastic, paper, air, carton, glass, cotton, wood, } 0.5



Registration No.....

**School of Electrical Skills**  
**First Semester, First In-Semester Examination**  
**Winter Semester, B.-Voc. Program, Session:2017-18**

Course code: ELE1002

Time: 1 Hour

Course name: Electrical Technician

Max. Marks: 20

**Instructions:** 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.

Section – A

(5x1=5)

1. Which is the unit of electrical energy?  
(a) Watt second(Ws) & watt(W).                      (b) watt(W) & watt(W).  
(c) Joule second (Js) & watt(W).                      (d) kWh
2. Which of the following is renewable energy?  
(a) nuclear.    (b) solar energy.  
(c) wood.    (d) coal.
3. Which of the following is fossil energy source?  
(a) solar energy.    (b) wind energy.  
(c) Hydro power.    (d) coal.
4. which formula of ohm's law is correct?  
(a)  $V/I = \text{constant}$ .    (b)  $VI = \text{constant}$ .  
(c)  $VIR = \text{constant}$ .    (d)  $I/V = \text{constant}$ .
5. which of the following is used in wind power plant?  
(a) gas motor.    (b) Propeller.  
(c) solar Panel.    (d) nuclear reactor.

Section – B

(3x2=6)

1. Write unit and unit symbol of (a) light energy (b) mechanical energy (c) chemical power.
2. Give the name of five renewable energy sources.
3. Give the name of three fossil energy sources.

Section – C

(3x3=9)

1. Draw the block diagram of biogas power station.
2. Write the statement of ohm's law and Define Resistance with unit and symbol.
3. Draw the block diagram of nuclear power station.



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**School of Electrical Skills**  
**First semester, first In-semester Examination**  
**Winter semester, B.Voc Program, Session:2018-19**

Course code: ELE1002

Time: 1 Hour

Course name: Electrical technician

Max. Marks: 20

**Solution:**

**Section – A** (5x1 = 5)

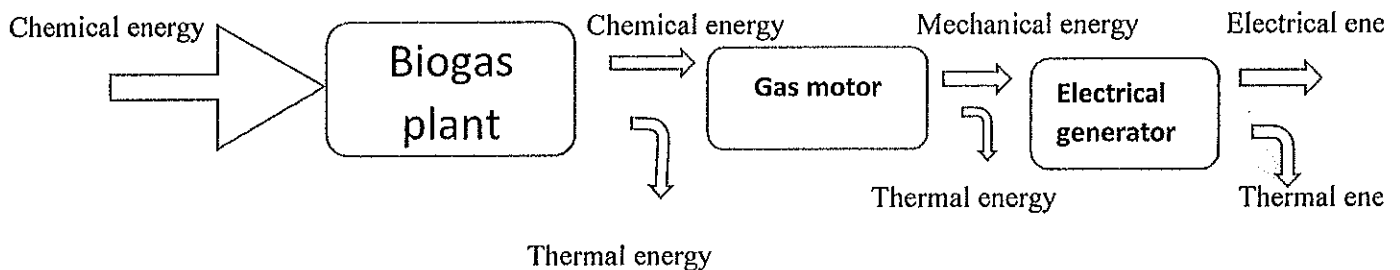
1. D
2. B (or C)
3. D
4. A
5. B

**Section – B** (3x2 = 6)

1. (a) watt second & Ws. (b) Newton meter & Nm. (c) Joule & J.
2. Solar energy, Biomass, Hydropower, Tides, Wind power.
3. Natural gas, Petroleum, Coal.

**Section – C** (3x3 = 9)

1.



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**School of Electrical Skills**  
**First semester, first In-semester Examination**  
**Winter semester, B.Voc Program, Session:2018-19**

Course code: ELE1002

Time: 1 Hour

Course name: Electrical technician

Max. Marks: 20

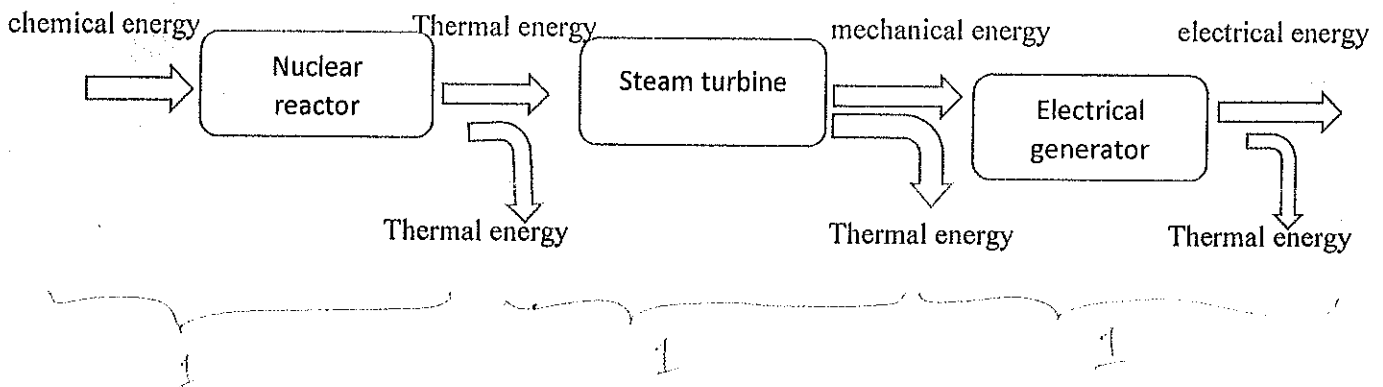
2. Ohm's Law states that the ratio of the voltage across any two points of a circuit to the current flowing through is constant provided physical conditions, namely temperature etc. remain constant. } 1

Thus  $V/I = \text{constant}$  } 0.5

Resistance offered by the circuit to oppose the flow of current (symbol R) } 1

Unit – ohm. } 0.5

3.





Registration No.....

**School of Electrical Skills**  
**First Semester, First In-Semester Examination**  
**Winter Semester, B.-Voc. Program, Session:2017-18**

**Course code: ELE1003**

**Time: 1 Hour**

**Course name: Maintenance Technician Electrical**

**Max. Marks: 20**

**Instructions:** Answer all questions from section A, each question carries one mark. Answer all question from section B, each question carries two marks. Answer all questions from section C, each question carries three marks.

**Section – A**

**(5x1=5)**

1. What is full form of MCB?  
(a) Right circuit breaker. (b) Miniature circuit breaker.  
(c) Maximum circuit breaker (d) multicore circuit breaker:
2. Which one of the following is not categorized as a type of safety in a workshop?  
(a) Study safety (b) General safety  
(c) Personal safety (d) Machine safety
3. What is the full form of PPE?  
(a) Private protective equipment. (b) Practical protective equipment  
(c) Personal protective equipment (d) Personal private equipment
4. Which of the following is warning sign?  
(a) No Smoking (b) Risk of fire  
(c) Wear hand protection (d) First aid point
5. Which of the following is not an electrical hazard?  
(a) Short circuit (b) Open wire  
(c) Current leakage (d) Smoking

**Section – B**

**(3x2=6)**

1. Write any four different causes of accidents.
2. Explain the two categories of PPEs.
3. Which wires are found in different diameter and some MCB's with different current rating?

**Section – C**

**(3x3=9)**

1. Explain the term "emergency".
2. Explain different ways to extinguish fire.
3. Explain how to rescue a person who is in contact with a live wire.





Registration No.....

## School of Electrical Skills

### First semester, First In-semester Examination Winter semester, B.-Voc. Program, Session:2018-19

Course code: ELE1003

Time: 1 Hour

Course name: Maintenance Technical Electrical

Max. Marks: 20

### Solution:

#### Section – A (5 × 1 = 5)

1. B
2. A
3. C
4. B
5. D

#### Section – B (3 × 2 = 6)

1. Unawareness of danger, Negligence, Untidy condition of work place, Improper use of tools. } 1
2. **Non-respiratory:** Those used for protection against injury from outside the body. } 1  
**Respiratory:** Those used for protection from harm due to inhalation of polluted air } 1
3. The different areas of wires depend upon how much current the wire can carry. } 1  
The different current rating of MCB's depend upon how much load they can carry. } 1

#### Section – C (3 × 3 = 9)

1. An emergency is an unexpected occurrence and requires immediate action. In a place like a workshop such a situation can arise when a person gets a shock due to electrical current, or a person gets injured by the rotating part of a machine. } 1



Registration No.....

## School of Electrical Skills

First semester, First In-semester Examination  
Winter semester, B.-Voc. Program, Session:2018-19

Course code: ELE1003

Time: 1 Hour

Course name: Maintenance Technical Electrical

Max. Marks: 20

2. There are three ways to extinguishing fire:

- Starving the fire of fuel removes this element. } 1
- Smothering –i.e. Isolate the fire from the supply of oxygen by blanketing it with foam, sand etc.
- Cooling – use water to lower the temperature. } 1

3. If a person is in contact with live wire, then we can do following tips:

- Switch off the current, if this can be done without undue delay. } 1
- Otherwise, remove the victim from contact with the live conductor, using dry non-conducting materials such as wooden bar, rope. } 1
- If assistance is at close hand, then send for medical aid. } 1
- If you are alone, proceed with treatment at once. } 1
- Avoid direct contact with the victim. } 1





# FIRST IN- SEMESTER EXAMINATION SOLUTIONS

COURSE CODE: - ELE1004

COURSE NAME: - CONSTRUCTION ELECTRICITY  
AN-II

By winter semester, B.VOC. Program (2017-18)

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## Section - A

1. Ans: - (b)

2. Ans: - (a)

3. Ans: - (b)

4. Ans - (a)

5. Ans - (a)

Section - B

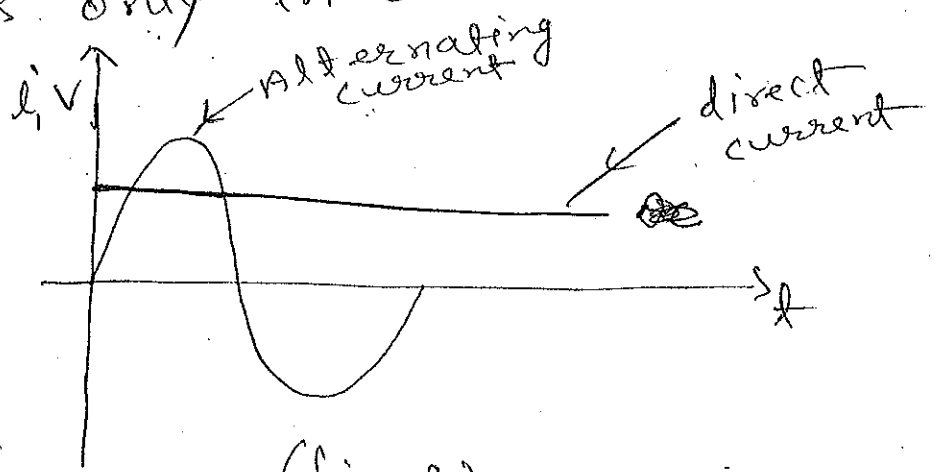
1. Ans:

The earth pin on a plug is longer than the live and neutral pins. This means the earth pin is the first to connect and last to disconnect. This assures safety for the person who uses the electrical instrument.

The resistance  $R$  of a conductor is inversely proportional to its cross-sectional area. Hence a thicker earth pin increases its cross-sectional area, which makes the earth pin low resistive, and makes an easy path for the charge flow.

2. Ans: —

Alternating current (AC) is an electric current which periodically reverses direction in contrast to direct current (DC) which flows only in one direction.



(fig-1)

3. Ans:

- 1) MCB is more sensitive to current than fuse, it detects any abnormality in the current flow and automatically switches off the electrical circuit.
- 11) MCB is reusable and hence has less maintenance and replacement cost, whereas a fuse needs to be replaced whenever it goes faulty.

Section - c

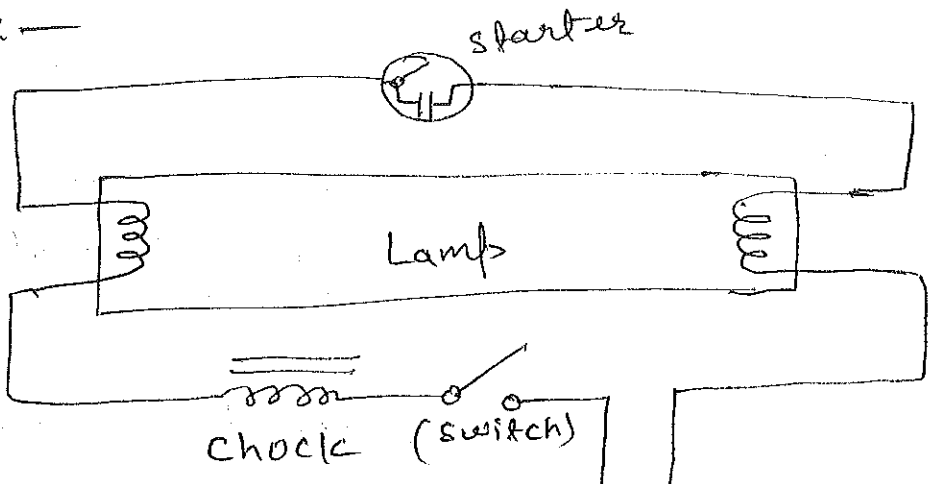
1 Ans:

The product of voltage times current is power. Power is used to produce real work. The basic unit of power is watt (W).

Electrical energy is the product of electrical power and time.

The amount of time a load is on (i.e., current is flowing) times the amount of power used by the load (i.e., watt) is energy. The unit for electrical energy is watt-hours (Wh).

Ans: -



(230V AC supply)

fig: Tube Light wiring diagram

Basic components of Fluorescent tube light is as follows: -

- (i) Tube: - Filled with mercury vapours and inner surface coated with phosphorous.
- (ii) Electrodes: It is used for ionising the gas.
- (iii) chock/Ballast: - It consists inductor, to generate high voltage and to maintain arc.
- (iv) starter: - It is a small neon glow up lamp that contains a fixed contact, a bimetallic strip and small capacitor.

3. Ans:

The main reason to connect all house hold appliances in parallel is that, in parallel connection equal supply voltage is present across all house hold appliances. If any appliances become faulty or disconnected from supply it would not affect others.

If we connect all house hold appliances in series then if any one of them become faulty or disconnected then remaining all appliances become off as circuit is disconnected.

1.11 THE STUDENT'S EXPERIMENTAL

REPORT

COURSE CODE: EE11004

COURSE NAME: CONSTRUCTION ELECTRICITY  
Part-II

By Winter Semester, B.Voc. Program (2017-18)

Section: A

1. Ans - (b)

2. Ans - (a)

3. Ans - (b)

4. Ans - (a)

5. Ans - (a)