

- (d) Explain Ohm's law in brief with the help of a diagram.

5. Answer the following essay-type question (*Any three*):

3×4 = 12

- (a) Explain with diagram the process of plate earthing.
- (b) Calculate power and energy in 10 watthour and draw its circuit diagram where, $R = 100 \text{ ohm}$ and D.C. battery source = 9v
- (c) What are the safety measure needed for working around electrical panel and cabinet?
- (d) Explain with block diagram how electricity is generated. Describe the working of lightning Arrester?

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2020

ELECTRONICS & HARDWARE

(Theory)

Full Marks : 30

Time : 1 hour

The figures in the margins indicate full marks for the questions

General Instructions:

- Write all the answers in the answer script.
- Attempt all parts of a question together at one place.

1. Choose the correct answer:

1×4 = 4

(a) The resultant Resistance in series circuit is

(i) $R = R_1 + R_2 + R_3$

(ii) $R = \frac{V}{I}$

(iii) $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

(iv) $R = \frac{R}{R_1 + R_2}$

(b) The internal resistance of an ammeter is

(i) High

(ii) Low

(2)

- (iii) Zero
- (iv) Infinite

(c) What is the unit of electrical pressure (or electromotive force)?

- (i) Watts
- (ii) Amps
- (iii) Volts
- (iv) Current

(d) Concealed wiring is immune to

- (i) Humidity
- (ii) Heat
- (iii) Light
- (iv) Dust

2. Fill in the blanks : $1 \times 4 = 4$

- (a) Switches should be connected to the _____ wire.
- (b) Pliers are classified by their _____ shape and intended work.

(3)

(c) Maximum earth resistance value of major power station is _____.

(d) _____ is used to join wires with metal.

3. Answer in 1 word or 1 sentence each (*Any four*): $1 \times 4 = 4$

- (a) Which form of energy is converted by solar cell into electrical energy?
- (b) What is Inductance?
- (c) What switch is used to control one bulb from two points?
- (d) What is Distribution Board?
- (e) Which material is used in conduit wiring?
- (f) What is heating effect in electric current?

4. Answer the following questions in 3 or 4 sentences each (*Any three*): $2 \times 3 = 6$

- (a) Why is PVC casing-capping preferred over wooden casing-capping wiring?
- (b) Write down the colour code of A.C. power circuit for single phase circuit.
- (c) Why aluminium is the most commonly used metal for electrical wiring?