Model Question Paper

Electricity and Energy (P) - Part II

10th Standard

Science

Reg.No. : | | | | | | |

I.Answer all the questions.
II.Use blue pen only.
III.Question number 16- is compulsory

Time : 00:40:00 Hrs

Total Marks : 40

Part-A

5 x 1 = 5

1) Which one of the following statements does not represents Ohm's law?

(a) current / potential difference = constant (b) potential difference / current = constant (c) current = resistance x potential difference

2) The symbol of ammeter is_____

(a) V (b) A (c) G (d) I

3) The main source of bio-mass energy is_____

(a) coal (b) heat energy (c) thermal energy (d) cow-dung

4) The unit of electric current is

(a) amphere (b) volt (c) watt (d) kilo-watt

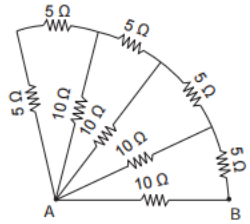
5) The energy produced when 1 kg of a substance is fully converted into energy is

(a) $9 \times 10^{16} J$ (b) $9 \times 10^{8} J$ (c) $18 \times 10^{8} J$ (d) $18 \times 10^{16} J$

Part-B

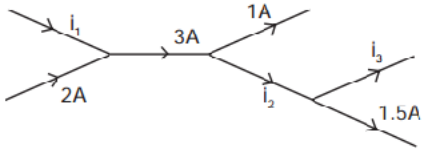
7 x 2 = 14

6) In the given network, find the equivalent resistance between A and B.

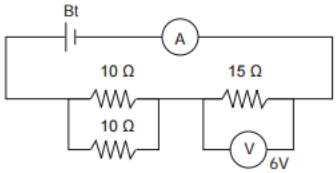


7) Old – fashioned serial lights were connected in a series across a 240V household line. i) If a string of these lights consists of 12 bulbs, what is the potential difference across each bulb? ii) If the bulbs were connected in parallel, what would be the potential difference across each bulb?

8) The figure is a part of a closed circuit. Find the currents i_1 , i_2 and i_3 .



9) If the reading of the Ideal voltmeter (V) in the given circuit is 6V, then find the reading of the ammeter (A).



10) A wire of resistance 8 ? is bent into a circle. Find the resistance across the diameter.

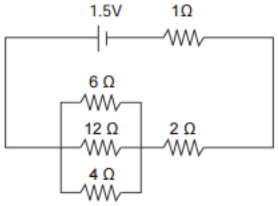
11) A wire is bent into a circle. The effective resistance across the diameter is 8 ?. Find the resistance of the wire.

12) Two bulbs of 40 W and 60 W are connected in series to an external potential difference. Which bulb will glow brighter? Why?

Part-C

4 x 5 = 20

13) Find the total current that passes through the circuit given in the diagram. Also find the potential difference across 1? resistor.

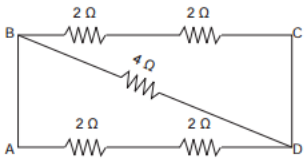


14) Raman's air-conditioner consumes 2160 W of power, when a current of 9.0 A passes through it. i) What is the voltage drop when the air-conditioner is running? ii) How does this compare to the usual household voltage? iii) What would happen if Raman tried connecting his air-conditioner to a 120V line?

15) a) The effective resistance of three resistors connected in parallel is 60/47 ?. When one wire breaks, the effective resistance becomes 15/8 ohms. Find the resistance of the wire that is broken.

(OR)

b) Find the resistance across (i) A and D (ii) B and D.



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