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**Class: 10**
**Subject:**
**Topic: Electricity**
**No. of Questions: 20**

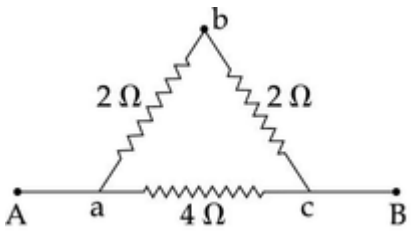
Q1. A wire of resistivity ρ is stretched to double its length. How does it affect the (a) resistance (b) resistivity?

Q2. A wire of resistance 10 ohm is bent in the form of a closed circle. What is the effective resistance between the two points at the end of any diameter of the circle?

Q3. List two safety measures commonly used in electric circuits. Explain the main function of each.

Q4. With the help of a circuit diagram prove that when a number of resistors are connected in parallel the reciprocal of the equivalent resistance of the combination is equal to the sum of the reciprocals of the individual resistances of the resistors.

Find the resistance between A and B in the following network




Q5. (a) How does the resistance of a wire change when?

(i) Its length is tripled?

(ii) Its radius is tripled?

(iii) Its material is changed to one whose resistivity is three times?

(b) List two reasons why nichrome is used for making heating element of electrical appliances.

Q6. Mention one reason why tungsten is used for making filament of electric lamp.

Q7. List two characteristics of the material to be used in fuse wire. Name the material it is made of. A fuse is always connected in series in an electric circuit? Justify this statement giving reason

Q8. A circuit has a line of 5 A. How many lamps of rating 40 W; 220 V can simultaneously run on this line safely?

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Q9. Several electric bulbs designed to be used on a 220 V electric supply line, are rated 10 W. How many lamps can be connected in parallel with each other across the two wires of 220 V line if the maximum allowable current is 5 A?

Q10. Express work done in an electric field in terms of charge and potential difference. Calculate the amount of work done in carrying a charge of 5 mC against a potential difference of 100 V

Q11. Distinguish between kilowatt and kilowatt hour. For a heater rated at 4.4 kW; 220 V. Calculate the -

(i) Current drawn by the heater (ii) resistance of the heater element

(iii) Energy consumed by the heater in 4 hours (iv) cost of running the heater if 1 kWh costs Rs. 6.50

Q12. Distinguish between resistance and resistivity of a conductor.

Q13. Which has more resistance: 100W bulb or 60W bulb?

Q14. Ammeter burns out when connected in parallel. Give reasons.

Q15. Two fuse wire A and B of the same length are rated 15A and 5A. Which amongst the A and B will be thicker and why?

Q16. Two bulbs marked 200 Watts – 250 V, and 100 Watts – 250 V are joined in series to 250 V supply. Find the power consumed by the circuit

Q17. What is conductance?

Q18. A household uses the following electric appliances:

(i) Refrigerator of rating 400W for ten hours each day.
(ii) Two electric fans of rating 80W each for twelve hours each day.
(iii) Six electric tubes of rating 18W each for 6 hours each day.
Calculate the electricity bill of the household for the month of June if the cost per unit of electric energy is Rs. 3.00

Q19. Two wires of same material and same length have radii $r_1$ and $r_2$. Compare their resistances.

Q20. The resistors are generally made of thin wires of Eureka or Manganin while the wires used in connections are made comparatively thicker and are of copper or aluminium. Why? Give reason.