CBSE 10th Electricity Unsolved Paper

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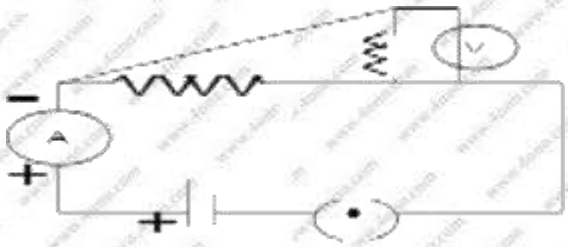
SECTION - A

Q.1. . A metallic conductor has loosely bound electrons called free electrons. The metallic conductor is

(a) negatively charged
(b) positively charged
(c) neutral
(d) Either positively charged or negatively charged

Q.2. Which two circuit components are connected in parallel in the following circuit diagram?

(a) R_1 and R_2 Only
(b) R_1, R_2 only
(c) R_2 and V only
(d) R_1 and V only



Q.3. Which of the following expressions does not represent the electric power in the circuit?

(a) VI
(b) I^2/R
(c) V^2/R
(d) $I^2\,R$

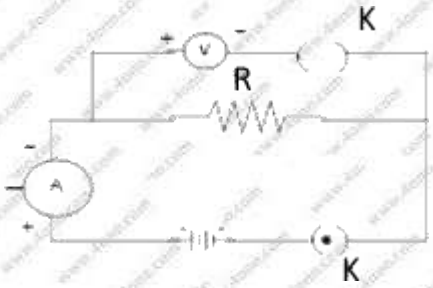
Q.4. A wire of resistance R is cut into five equal pieces. These pieces are connected in parallel and the equivalent resistances of the combination are R^l. Then the ration is $\frac{R}{R^l}$

(a) $\frac{1}{5}$
(b) 5
(c) $\frac{1}{35}$
(d) 25

Q.5. Resistivity of a metallic wise depends on

(a) its length
(b) its shape
(c) its thickness
(d) nature of material

Q.6. For the circuit arrangement shown below, a student would observe.



(a)Some reading in both ammeter and voltmeter.
(b)No reading in either the ammeter or the voltmeter.
(c)Some reading in the ammeter but no reading in the voltmeter.
(d)Some reading in the voltmeter but no reading in the ammeter.

Q.7. If the current I through a resistor is increased by 100% the increased in power dissipation will be (assume temperature remain unchanged)

(a)100%
(b) 200%
(c) 300%
(d) 400%

Q.8. The resistance of the conductor is R. If its length is doubled, then its new resistance will be

(a) R
(b) 2R
(c) 4R
(d) 8R

Q.9. Name a device that helps to maintain a potential difference between across a conductor.

Q.10. The nature of the graph between potential difference and the electric current flowing through a conductor is

(a) parabolic
(b) circle
(c) straight line
(d) hyperbolic

SECTION – B

Q.11. . Define the term "volt"?

Q.12. How does use of fuse wire protect electrical appliances?

Q.13. Why does the connecting rod of an electric heater not glow while the heating element does?

Q.14. (i) identify the V-I graphs for ohmic and non-ohmic materials.
(ii) Give one example of each.

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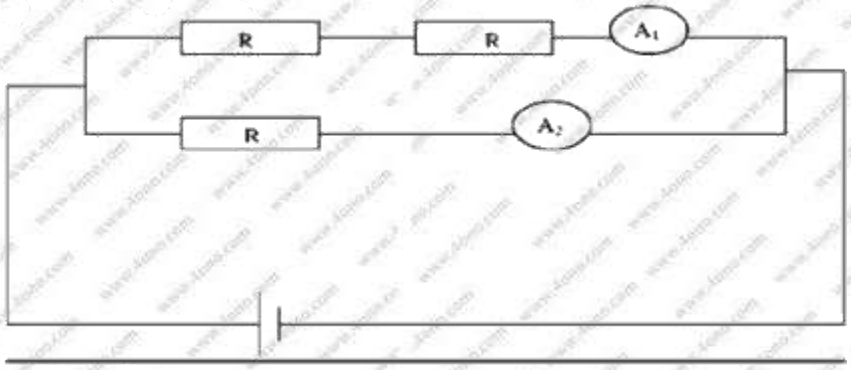
Q.15. In the given figure what is the ratio of current in A



Q.16. Compute the heat generated while transferring 96000 coulomb of charge in one hour through a potential difference of 50 V

Q.17. Alloys are used in electrical heating devices rather than pure metals. Give reason.

SECTION – C

Q.18. Two resistor of resistance R and 2R are connected in parallel in an electric circuit. Calculate the ratio of the electric power consumed by R and 2R?

Q.19. Should the heating element of an electric iron be made of iron, silver or nichrome wire? Justify giving three reasons?

Q.20. Two resistors of resistances R and 2R are connected in series is an electrical circuit? Calculate the ratio of the electric power consumed by R and 2R?

Q.21. The length of different metallic wires but of same area of cross section and made of the same material are given below

Wire	Length
A	1m
B	1.5m
C	2.0m

(i) Out of these two wires which wire has higher resistance.
(ii) Which wire has higher electrical Resistivity? Justify your answer.

Q.22. How much energy is given to each coulomb of charge passing through a 6 volt battery?

Q.23. On what factor does the resistance of a conductor depend?

Q.24. Two conducting wires of the same material and of equal lengths and equal diameters are first connected in series and then in parallel in an electric circuit. the ratio of heat produced in series and parallel combinations would be

(a) 1:2
(b) 2:1
(c) 1:4
(d) 4:1

Q.25. Draw a schematic diagram of a circuit consisting of a battery of three cells of $2V$, each, a 5 Ω resistor, 8 Ω resistors and a 12 Ω and a plug key, all connected in series.

Q.27. An electric lamp of 100 Ω, a toaster of resistance 50 Ω and a water filter of resistance 500 Ω are connected in parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all three appliances, and what is the current through it?

SECTION – D

Q.28. What are the advantages of connecting electrical devices in parallel with the battery instead of connecting them in series?

Q.29. Two wires A and B are of equal length, different cross sectional areas and made of same metal.

(a)(i) Name the property which is same for both the wires,
(ii) Name the property which is different for both the wires.

(b)If the resistance of wire A is four times the resistance of wire B, calculate
(i) the ratio of the cross sectional areas of the wires and
(ii) The ratio of the radii of the wire.

Q.30. (a) Define electrical energy with S.I. unit?
(b) A house hold uses the following electric appliance;

(i) Refrigerator of rating 400w for ten hour each day.
(ii) Two electric fans of rating 80w each for twelve hours each day.
(iii) Six electric tubes of rating 18w each for 6hours 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.

Q.31. (a) State ohm's law?
(b) The value of (I) current following through a conductor for the corresponding valves of (V)potential difference are given below

I (Ampere)	0.5	1.0	1.5	2.0	2.5
V (Volt)	1	2	3	4.5	5

Plot a graph between V and I and also calculate resistance.

Q.32. How can three resistors of resistance 2Ω, 3Ω and 6Ω be connected to give a total resistance of (a) 4 Ω (b) 9 Ω?

Q.33. Explain the following:

(a) Why is the tungsten used almost exclusively for filament of electric lamps?
(b) Why are the conductors of electric heating devices, such as bread-toasters and electricirons, made of an alloy rather than a pure metal?
(c) Why is the series arrangement not used for domestic circuits?
(d) How does the resistance of wire vary with its area of cross-section?
(e) Why are copper and aluminum wires usually employed for electric transmission?