BHARATH COACHING CENTRE

10th CBSE	Science	Total: 50
1st Unit	Physics	Time: 1.30 hrs

SECTION – A 10 x 1 = 10

1. How many joules are there in one kilowatt-hour?
2. How does the resistance of a wire vary with its cross-sectional area?
3. What will happen to the current in a circuit, if its resistance is doubled?
4. Which has a greater resistance, a 100W, 220V bulb or a 60W, 220V bulb?
5. Give two practical applications of heating effect of current.
6. What is the resistance of 1000W, 220V toaster?
7. The filament of electric bulb is made of tungsten. Why?
8. Why are alloys commonly used in electrical heating devices?
9. What happens to the resistance of a conductor when temperature is increased?
10. Why do we use copper and aluminium wire for transmission of electric current?

SECTION – B 5 X 2 = 10

11. What is meant by resistivity? What are the units of its measurement?
12. An electric appliance draws a current of 0.4A when the voltage is 200 volt. Calculate the amount it in one hour.
13. a. Do you know the charge of an electron in coulomb?
    b. How many electrons are there in one coulomb of charge?
14. If a student by mistake connects a voltmeter in series or an ammeter in parallel of a circuit, what will happen?
15. A wire is 1.0 m long, 0.2 mm in diameter and has a resistance of 10Ω. Calculate the resistivity of its material.

SECTION – C 5 X 3 = 15

16. a. Define the term 'volt'. b. State the relation between work, charge and potential difference for an electric circuit. Calculate the potential difference between the two terminals of a battery, if 100 joules of work is required to transfer 20 coulombs of charge from one terminal of the battery to the other.
17. a. How is the direction of electric current related to the direction of flow of electrons in a wire?
    b. Calculate the current in a circuit if 500C of charge passes through it in 10mins.
18. a. Explain the function of electric fuse.
    b. Write symbols used in electric circuits to represent (i) Variable resistance (ii) Voltmeter
    c. An electric bulb is rated 220V and 100W. When it is operated on 110V, what will be the power consumed?
19. a. Explain the function of electric fuse. b) An electric bulb is marked 60W. What does this mean? How much energy does it consume if used for 1 hour?

20. Two conducting wires of same material, equal length and equal diameter are connected in series. How does the heat produced by the combination of resistance change?

SECTION – D 3 X 5 = 15

21. a. Explain Ohm's law by a mathematical formula. b) Draw a circuit diagram to verify Ohm's law. c) Present the relationship between the voltage applied across a conductor and the current flowing through it graphically.
22. a) Why is the series arrangement not used for domestic circuits?
    b) Why is the tungsten used almost exclusively for filament of electric lamps?
    c) Why are the conductors of electric heating devices such as bread toasters and electric irons made of an alloy rather than a pure metal?
    d) Why are copper and aluminium wires usually employed for electricity transmission?
    e) Why does the cord of an electric heater not glow while the heating element does?
23. Calculate the equivalent resistance of the circuit as shown in figure below in which six 1Ω resistors are connected in hexagonal form.