MBC – MRIDUL BHAIYA CLASSES

TEST PAPER – 01

Test
Electricity

MAXIMUM MARKS : 30 Marks

MAXIMUM TIME : 45 Min

1. What are the two types of Electric Charge. **(1 Marks)**

2. What do you understand by Potential difference? **(1 Marks)**

3. The direction of current is the same as that of the flow of electrons. Explain with a circuit diagram. Is this statement true or false? **(1 Marks)**

4. State Ohm's law **(2 Marks)**

5. a) Calculate the energy transferred when 2A current flows through a 10 Ω resistor for 30 minutes
b) Calculate the amount of charge that would flow in one hour through the element of an electric iron drawing a current of 0.4A **(2 Marks)**

6. a) How much work is done in moving a charge of 3C from a point of volt 115 to a point at 125 volts?
b) Name the device used to measure electric current and potential difference. **(2 Marks)**

7. Draw a circuit diagram showing a cell, a bulb and a closed switch.

8. Given n resistors each resistance 5Ω. How will you combine them to get the (i) maximum and (ii) minimum effective resistance? What is the ratio of the maximum to minimum resistance? **(2 Marks)**

9. a) A wire of length L and resistance R is steched so that its legth is douled. How will the i) Resistance change ii) Resistivity change ?
b) Plot a graph for V-I graph. **(3 Marks)**

10. a) A tube light draws 0.1 current from a 220V supply. What current will this tube light draw when it is connected to a 110V supply?
b) An electric wire is strecthed to increase its legth by 25% by what % will the resistance be increased and what will be increase in its resistivity? **(3 Marks)**

11. a) Two resistances of 4 Ω and 8 Ω are connected in parallel. What would be the combined resistance of the system?

b) Two identical resistors each of resistance 2 Ohm are connected in turn (1) in series (2) in parallel to a battery of 12 V. Calculate the ratio of power consumed in two cases. **(3 Marks)**

12. a) A household uses the following electric appliances:

(i) Refrigerator of rating 400 W for ten hours each day.

(ii) Two electric fans of rating 80 W each for twelve hours each day.

(iii) Six electric tubes of rating 18 W 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.

b) An electric iron of resistance 20Ωtakes a current of 5 A. Calculate the heat developed in 30sec.

(3 Marks)

13. a) Derive the expression for Joule's Law of Heating.

B) Derive a formula for four equivalent resistance connected in series. **(5 Marks)**