SET - A

E - 1006 - Ph

SAMAGRA SHIKSHA, KERALA

FIRST TERMINAL EVALUATION 2022-'23

PHYSICS

Standard: X

Time: 1½hour
Score : 40

Instructions

- The first 15 minutes is cool off time. You may use the time to read and plan your answers.
- Answer the questions only after reading the instructions and questions thoroughly.
- Answer each question by considering the scores.

Answer any FOUR questions from 1 to 5. Each question carries one score. **(4 x 1 = 4)**

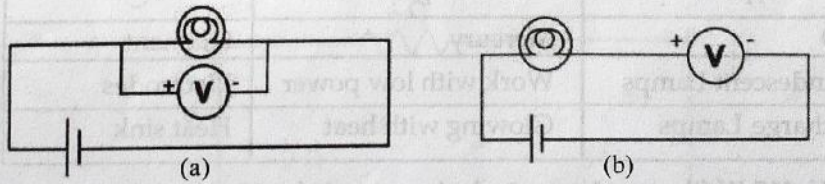
1. Identify the relation in the first word pair and fill the second pair suitably. (1)
   Tungsten: Incandescent lamp
   .....: Electric iron

2. According to Right hand thumb rule, thumb indicates the direction of _____.
   a) magnetic field b) current c) motion of the conductor (1)

3. How is the fuse wire connected to a circuit? (1)
   (series/ parallel)

4. The amperage of the fuse wire used in a device that works on 230 V is 2.2 A. The recommended power of the device is _____. (1)
   a) less than 300 W b) 300 W
   c) 500 W d) More than 600 W

5. Which is the correct circuit? (1)



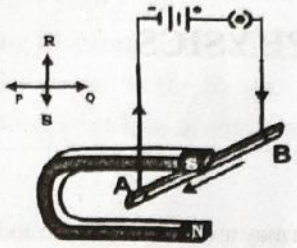
(a) (b)

Answer any FOUR questions from 6 to 10. Each question carries 2 scores. **(4 x 2 = 8)**

6. Safety fuse is the device which protects the electrical appliances at our home. How does the safetyfuse ensure safety of electrical devices? Explain. (2)

7. Calculate the effective resistance when 2 Ω, 12 Ω and 4 Ω resistors are connected in parallel? (2)

8. A straight conductor AB carrying current is placed in a magnetic field as shown.



a. When the circuit is switched on, in which direction will the conductor AB move? (1)

b. Write two factors that affect the direction of motion of the conductor. (1)

9. How many resistors of 110 Ω should be connected in parallel to get 4 A current from a 220 V supply? (2)

10. Arrange the following statements in the given table. (2)

a. When number of resistors increases effective resistance increases.

b. When number of resistors increases effective resistance decreases.

c. Potential difference is the same for all the resistors.

d. Potential difference will be divided in accordance with the value of resistors.

Resistors in Series	Resistors in Parallel

Answer any FOUR questions from 11 to 15. Each question carries 3 scores. (4 x 3 = 12)

11. Match the terms in the columns A, B and C suitably. (3)

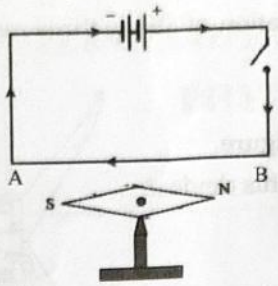
A	B	C
LED	Mercury	Filament
Incandescent Lamps	Work with low power	Electrodes
Discharge Lamps	Glowing with heat	Heat sink

12. A 230 V, 115 W filament lamp works in a circuit for 10 minute.

a. What is the current flowing through the bulb? (2)

b. How much is the quantity of charge that flows through the bulb in 10 minutes. (1)

13. A straight conductor AB is arranged parallel to a magnetic needle capable to rotate freely as shown in the figure.



a. Give the direction of deflection of the north pole of the magnetic needle when the circuit is switched on. (clockwise/anticlockwise) (1)

b. What is the reason for the deflection of the magnetic needle? (1)

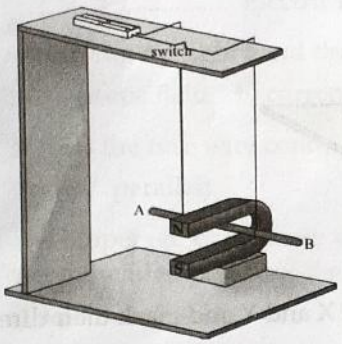
c. Suggest a method to reverse the direction of deflection of the magnetic needle. (1)

14. The marking on an electric appliance is 800 W, 200 V

a. What do you mean by power? (1)

b. What will be the power of the device if it works on 100 V ? (2)

15. Observe the figure.



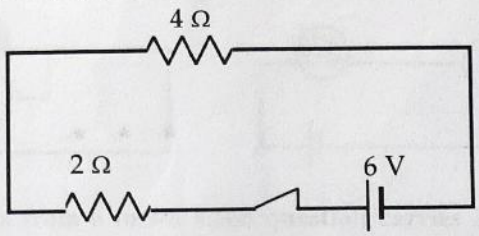
a. Which type of magnet is shown in the figure? (1)

b. Name the rule that helps you to find out the direction of motion of the conductor AB, when the current is switched on. (1)

c. State the rule. (1)

Answer any FOUR questions from 16 to 20. Each question carries 4 scores. (4 x 4 = 16)

16. Observe the circuit given below.



a. Identify the type of arrangement of resistors in the given circuit. (1)

b. Calculate the effective resistance in the circuit. (1)

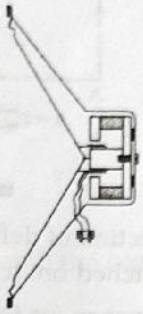
c. Calculate potential difference across the 4 Ω resistor. (2)

17. Three resistors 4 Ω, 8 Ω, and 12 Ω are given.

a. What is the least resistance that can be obtained by combining all of them? (1)

b. Draw the circuit showing combination of above three resistors to get an effective resistance of 6 Ω. (2)

18. Observe the following diagram.



a. Identify the device shown in the figure. (1)

b. What is the working principle of this device? (1)

c. State the principle. (2)

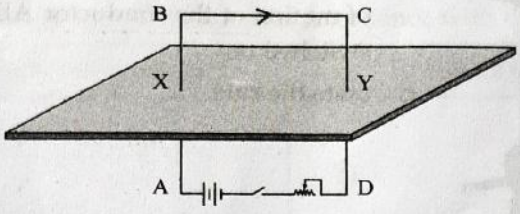
19. An electric heater of 1000 Ω works on a 230 V supply,

a. Write down the energy change taking place in the electric heater. (1)

b. Which law helps to find the quantity of heat generated in an electric heater? (1)

c. Calculate the electrical energy consumed when heater works for three hours? (2)

20. A conductor is inserted through a cardboard and kept in a vertical position as shown in the figure.



a. Draw the pattern of magnetic field lines around X and Y and mark their direction. (2)

b. State the rule which helps to determine the direction of magnetic field in this case. (2)

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