

THIRUVANANTHAPURAM EDUCATIONAL DISTRICT

PHYSICS



STD: X

Time: 1½ Hours

Score: 40

Section – A

Answer any four questions. Each question carries 1 score. [4 x 1 = 4]

Identify the relation and fill up suitably

- 1) Electric bulb: Lighting Effect; Battery charging:
- 2) Bar magnet: Permanent magnet ; Solenoid :
- 3) Electric current : Ampere ; Electric power :
- 4) Write the energy conversion in Induction cooker?
- 5) If the direction of the current in the one end of the solenoid is in anticlockwise direction, Find the magnetic pole at that end ?

Section – B

Answer any 4 questions. Each question carries 2 score. [4 × 2 = 8]

6. 10 resistors each of 2Ω are connected in parallel.

Calculate the effective resistance.

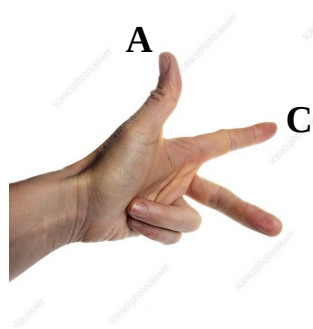
7. The important part of safety fuse is fuse wire.

- a. Which alloy is used to make the fuse wire?
- b. Write any one peculiarity of fuse wire?

8. LED lamps are now a days used to save electrical energy.

Write any two advantages of LED lamps.

9. Filament lamps produce light by glowing with heat.
- Which metal is used to make filament in incandescent lamps?
 - What is the purpose of filling nitrogen gas in incandescent lamps.
10. Fleming's left - hand rule is depicted in the picture



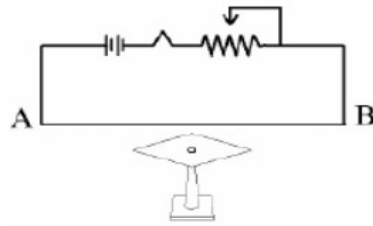
Identify A & C

Section – C

Answer any 4 questions. Each question carries 3 score. [4 × 3 = 12]

- 11) 0.2 A current flows through a resistor of resistance 100 Ω for 2 minutes
- Calculate the heat generated?
 - What will be the heat if current is doubled without changing the resistance and time?
- 12) You are familiar with the heating appliances.
- Write the energy conversion in heating appliances.
 - Name the main part of a heating appliance ?
 - Which material is used to make this part?
- 13) Suggest any three methods for increasing the strength of magnetic field around a current carrying solenoid.

14. A straight conductor AB is arranged parallel to a magnetic needle as shown in figure.



a) When the switch is ON what happens to the magnetic needle?

Give reason.

b) Name the law used to find the direction in which the magnetic needle deflects?

15) Power of a 200 V electric device is 500 W

a) Calculate the electric current through this device

b) What will be the amperage of the fuse wire suitable for this device?

(2 A, 2.5 A, 3A)

c) Find the resistance of this device?

Section – D

Answer any 4 questions. Each question carries 4 score. [4 × 4 = 16]

16. Certain processes related to discharge lamp are given below.

Arrange them in the order in which they occur.

a. Excited atoms come back to their original state for attaining stability.

b. A high potential difference is applied to the gas molecules.

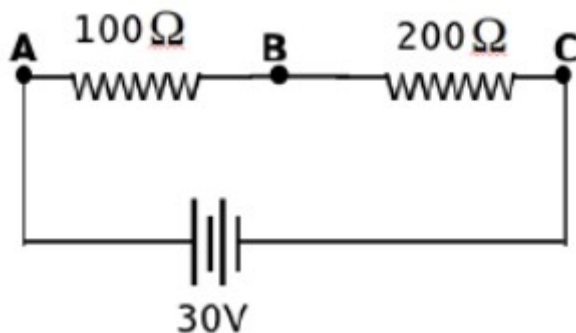
c. Radiated as light

d. Gas molecules get excited

17. Excess electric current in a circuit is the cause of many problems.

- a. Write two situations when excess flow of current takes place.
- b. What are the precautions to be taken when fuse wire is included in a household wiring?

18. See the circuit,



- a. The resistors are connected in
(series/parallel)
- b. What is the effective resistance in the circuit?
- c. High voltage is dropped across
(100 Ω /200 Ω)
- d. More heat will be generated in
(100 Ω /200 Ω)

19. Heat is developed when a current passes through a conductor. Then.

- a. Find out the factors that influence heat formed through a conductor.
- b. Name the law related to this.
- c. State the law.
- d. Write the mathematical equation of this law.

20. Arrange following statements in the given table.

- * When number of resistors increases effective resistance decreases.
- * Same amount of current passes through all the resistors.
- * Potential difference is same for all the resistors.
- * Applied voltage will be split among the resistors.

Series Connection	Parallel Connection

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