AIMS ACADEMY

CHAPTER 1 EFFECTS OF ELECTRIC CURRENT

(1 Mark Questions)

1. Electric bulb: electrical energy ⟶ light
   Induction cooker: electrical energy ⟶ _____
2. Which of the following is connected parallel to a circuit? (ammeter, voltmeter, galvanometer)
3. Which of the following is correct?
   (a) $Q = \frac{I}{t}$ (b) I= Q/t (c) Q = It (d) I= Qt
4. Define one volt
5. Find the odd one out
   (a) I^2R (b) VI (c) V^2/R (d) I^2R
   i. LED
   ii. Fluorescent lamp
   iii. Bulb
   iv. LCD
   (a) Induction cooker
   (b) soldering iron
   (c) safety fuse
   (d) LED
6. Write any two situations in which over current is flowing through a circuit
7. Name any two units of LED and write their uses
8. The amperage of a fuse wire used in a circuit that works on 230V is 2.2A. if so the power of the deice is
   (i) Less than 300W
   (ii) 300W to 500W
   (iii) Between 500W to 510W
   (iv) More than 510W
9. How much will be the power of a 220V, 100W electric bulb working at 110V?
   i. 100W ii 75W iii 50W iv 25W
10. How many resistors of 176Ω should be connected in parallel to get 5A current from 230V supply
    (a) 2 (b) 3 (c) 4 (d) 6
11. If five 10 Ω resistors are connected in parallel then their equivalent/effective resistance is
    (a) 10 Ω (b) 2 Ω (c) ½ Ω (d) 5 Ω
12. If five 10 Ω resistors are connected in series then their equivalent/effective resistance is
    (b) 5 Ω (b) 50 Ω (c) 10 Ω (d) 1/5 Ω
13. Define amperage and what is its unit?
14. 1 Calorie = _____ J
15. _____is used as heating coil in heater
16. Fuse wire is connected in a circuit in _____(series/parallel)
17. Fuse wire is an alloy of _____& _____
18. When the current flowing through a conductor is doubled then the heat generated become_____
    (a) Twice (b) four times (c) thrice (d) half
19. Write the full form of LED
20. Write a slogan for energy conservation

(2 marks questions)

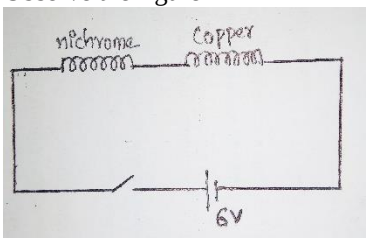
21.
    (a) Identify the device

    (b) Write any two advantages of LED bulb
22. Why nitrogen or inert gas is filled in incandescent lamp at low pressure
23. Why tungsten is used as filament? also Explain why nichrome is not used as a filament
24. Why nichrome is used as heating coil in electric heater?
25. Write the differences between series and parallel connection of resistors
26.
    a. A heating appliance has resistance 115Ω. If 2A current flows through it, what is the power of the appliance
    b. If it works for 5 minutes find the heat generated
27. Identify (a) and (b) and write their uses

a)

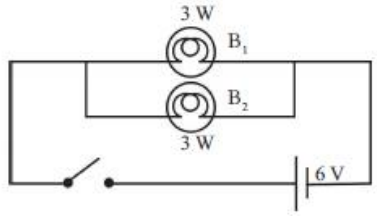
b)

28. According to Joule's law H= I^2Rt. Will the heat developed increases with increase on resistance without changing the voltage? Explain
29. If a bulb is lit after re-joining the parts of a broken filament, what change will occur in the intensity of the light from the lamp? What will be the change in the power of the bulb?
30. Observe the figure



    (a) If same length and area of cross section of wires are used which one will produce more heat when key is closed?
    (b) What happened to the heat produced if they are connected in parallel?
31. How fuse wire ensures safety of electric appliances
32. House hold appliances are connected in parallel. Why they are connected in parallel
33. Three resistors of 6 Ω are given draw the circuit which will give effective resistance 9 Ω and 4 Ω

34. Identify the type of connection



a. When key is closed which bulb will glow brightly
b. Does current in B_1 and B_2 are same or different
c. If B_1 is replaced with a 5W bulb then which bulb will glow brightly

35.

(a) A girl has many resistors of 2 Ω each. She needs a circuit of 9 Ω resistance. For this draw the circuit
(b) A boy has many resistors of 4Ω each. he needs a circuit of 26 Ω resistance. For this draw the circuit
(c) A boy has many resistors of 8Ω each. he needs a circuit of 2 Ω resistance. For this draw the circuit

(3 marks questions)

36. Three resistors of 2 Ω, 3 Ω and 6 Ω are given in the class.

a. What is the highest resistance that can be obtained by them? draw the circuit
b. What is the least resistance that can be obtained by them? Draw the circuit.
c. Can you make a resistance 4.5 Ω using them? Draw the circuit

37. 0.5A current flows through an electric heating device connected to 230V supply.

a. The quantity of charge that flows through the circuit in 5 minutes is_____
(a) 5C (b) 15C (c) 150C (d) 1500C
b. How much is the resistance of the circuit?
c. Calculate the quantity of heat generated in 5 minutes
d. How much is the power of the device neglect the resistance of wire

38.

a. Complete the following table

Electrical device	Operating voltage(V)	Power (P)	Current (I)
Heater	230V	4370W	------
Bulb	230V	-------	14.5 A
LED TV	230V	57.5W	------
Fan	----------	28.75W	0.125A

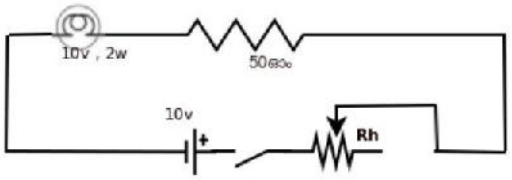
b. Match the following table

A	B	C
Heater	Voice coil	Lighting effect
Bulb	Heating coil	Electromagnetic induction
Microphone	Armature	Chemical effect
	Filament	Heating effect

39. Correct the underlined statements if it is wrong

a. Incandescent lamp <u>having high power</u> will <u>have high resistance</u> in its filament.
b. For devices working in same voltage the <u>power is directly proportional to its resistance.</u>
c. In an electric device the <u>power is directly proportional to its voltage.</u>

40. Observe the figure and answer the following questions

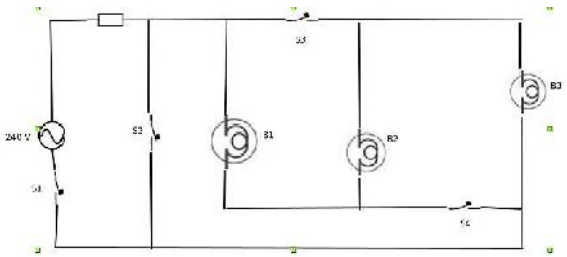


(a) What is the name and function of the device labelled as Rh
(b) If the resistance of Rh is 100 Ω what is the current flowing through the bulb
(c) Find the power of the bulb

41.

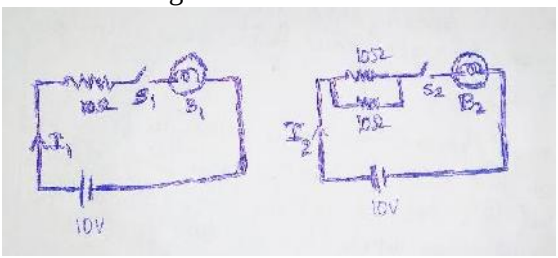
a. Write any two disadvantages of filament lamp
b. Why tungsten is not used in iron box?
c. Write any three factors which affect the heat generated in a current carrying conductor.

42. Observe the figure



(a) When switch S_1 is ON which of these bulbs will glow?
(b) If S_2 and S_3 are getting ON along with S_1 then what will happened to bulb?
(c) Does this circuit show short circuit and overloading under any case? Explain

43. Observe the figure



a. When the switches are getting ON which bulb will glow with more brightness? Explain.
b. Calculate I_1 and I_2 in the above figure