Chapter-11: Current Electricity

1. Which one is used in three-pin plugs? *[All Board-18]*
ⓐ Circuit breaker ⓑ Switch
ⓒ Fuse ⓓ Earth wire ⓓ

2. The correct relation is ——*[All Board-18]*
i. $\sigma = \dfrac{1}{\rho}$ ii. $G = \dfrac{1}{R}$
iii. $\sigma = G\dfrac{L}{A}$
Which one of the following is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii ⓑ

3. If the resistance of a wire is 5Ω then what will be the conductance? *[Dj.B.-17]*
ⓐ $0.1\Omega^{-1}$ ⓑ $0.2m\Omega^{-1}$
ⓒ $0.2\Omega^{-1}$ ⓓ $4\Omega^{-1}$ ⓒ

4. What is the resistivity of Tungsten? *[Dj.B -17]*
ⓐ $1.7 \times 10^{-8}\Omega m$ ⓑ $1.6 \times 10^{-8}\Omega m$
ⓒ $5.5 \times 10^{-8}\Omega m$ ⓓ $100 \times 10^{-8}\Omega m$ ⓒ

5. Which relation is correct in calculation of electrical energy spent? *[C.B.-17]*
ⓐ $W = I^2Rt$ ⓑ $W = IRt$
ⓒ $W = \dfrac{Vt}{R}$ ⓓ $W = \dfrac{Vt}{R^2}$ ⓐ

6. On the body of an electric bulb 60W – 220V is written. What is the resistance of the bulb? *[C.B.-17]*
ⓐ 16.36Ω ⓑ 160Ω
ⓒ 280Ω ⓓ 806.67Ω ⓓ

7. Which of the following is conductor? *[Ctg.B.-17]*
ⓐ Human body ⓑ Wood
ⓒ Paper ⓓ Plastic ⓐ

8. Which of the following is insulator? *[Ctg.B.-17]*
ⓐ Human body ⓑ Soil
ⓒ Glass ⓓ Iron ⓒ

9. Which substance has least specific resistance? *[S.B.-17]*
ⓐ Silver ⓑ Copper
ⓒ Tungsten ⓓ Nichrome ⓐ

10. The potential difference between two ends of filament of a bulb is 12V and its resistance is 4Ω. What is the flow of current? *[S.B.-17]*
ⓐ 3A ⓑ 4A
ⓒ 8A ⓓ 10A ⓐ

11. Which wire is used in electric heater? *[D.B.-16]*
ⓐ Copper ⓑ Nicrome
ⓒ Silver ⓓ Manganese ⓑ

12. Which one's resistivity is the most? *[R.B.-16]*
ⓐ Nicrome ⓑ Copper
ⓒ Silver ⓓ Tungsten ⓐ

13. What will be the conductance if any conductor is placed in a potential difference of 220 volts with resistance of 0.25Ω? *[Dj.B.-16]*
ⓐ $880\Omega^{-1}$ ⓑ 880A
ⓒ $4\Omega^{-1}$ ⓓ 4A ⓒ

14. What is the relation between the potential difference (V) of the two terminals of a conductor and flow of current (I)? *[C.B.-16]*
ⓐ $V = \dfrac{I}{R}$ ⓑ $I = \dfrac{R}{V}$

ⓒ $R = \dfrac{I}{V}$ ⓓ $R = \dfrac{V}{I}$ ⓓ

15. If the distance between two charged body and the amount of charge of each charged body is made doubled, then what will happen to the effective force? *[Ctg.B.-16]*
ⓐ One-forth ⓑ Half
ⓒ Remains same ⓓ Doubled ⓒ

16. Which instrument is used to determine the nature of a charged body? *[Ctg.B.-16]*
ⓐ Ammeter ⓑ Galvanometer
ⓒ Voltmeter ⓓ Electroscope ⓓ

17. Which one is conducting material? *[Ctg.B.-16]*
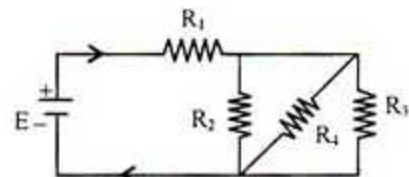ⓐ Glass ⓑ Copper
ⓒ Wood ⓓ Rubber ⓑ

18. What will happen to the value of resistance of a conductor when its cross-sectional area is reduced to half? *[S.B.-16]*
ⓐ Increases by 2 times ⓑ Decreases by 2 times
ⓒ Increases by $\dfrac{1}{2}$ time ⓓ Decreases by $\dfrac{1}{2}$ time ⓐ

19. The specific resistance of which material is 5.5×10^{-8} Ωm? *[J.B.-16]*
ⓐ Nichrome ⓑ Tungsten
ⓒ Copper ⓓ Silver ⓑ

20.

If E = 6V, R_1 = 100Ω, R_2 = 50Ω, R_4 = 75, then what will be the flow of current through R_3? *[J.B.-16]*
ⓐ 0.05A ⓑ 0.0125A
ⓒ 0.03A ⓓ 0.02A
N.B→ Here the value of R_3 is not given. If R_3 = 60 Ω, then the answer will be (a).

21. In which no free electron exists? *[B.B.-16]*
ⓐ Conductor ⓑ Insulator
ⓒ Semi-conductor ⓓ Good conductor ⓑ

22. When a 50Ω conductor wire is cutting half, then what will be the resistance of each part? *[B.B.-16]*
ⓐ 100Ω ⓑ 50Ω
ⓒ 25Ω ⓓ 12.5Ω ⓒ

23. What is meant by the symbol? *[B.B.-16]*
ⓐ Resistance ⓑ Fixed resistor
ⓒ Variable resistor ⓓ Fuse ⓒ

24. In combinated circuit —— *[C.B.-17]*
i. all points carry equal current in series connection
ii. at different point of the circuit flows different current in series connection
iii. in parallel connection the total current is equal to the sum of the currents at different points
Which one of the following is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii ⓑ

25.

$R_1 = 5\Omega$
$R_2 = 5\Omega$
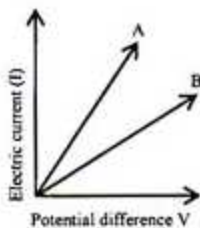$R_3 = 5\Omega$
$V_A - V_B = 5V$
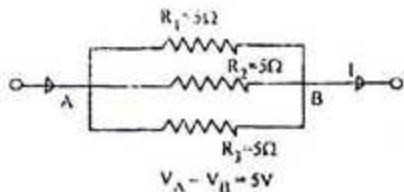
In the above circuit —[J.B.-17]
i.   The value of I is 5A
ii. The power of circuit is 15W
iii. Equivalent resistance is $\frac{5}{3}\Omega$

Which one is correct
ⓐ i and ii
ⓑ i and iii
ⓒ ii and iii
ⓓ i, ii and iii **ⓒ**

26.

Electric current (I)

Potential difference V

In case of the electric conductor marked above with 'A' and 'B'. [Dj.B.-16]
i.   'A' is a better conductor than 'B'
ii. 'B' is a better conductor than 'A'
iii. Resistance of 'B' is greater than 'A'
Which one of the following is correct?
ⓐ i and ii
ⓑ i and iii
ⓒ ii and iii
ⓓ i, ii and iii **ⓑ**

27. It is dangerous to stay under any tree during storm and rain since— [Dj.B.-16]
i.   electricity always passes following the shortest path
ii. soil and water are electric conductors
iii. electricity passes on earth through an object of high position
Which one of the following is correct?
ⓐ i and ii
ⓑ ii and iii
ⓒ i and iii
ⓓ i, ii and iii **ⓓ**

28. Opposite quantity of conductivity is called — [C.B.-16]
i.   specific resistance
ii. resistivity
iii. resistance
Which one is correct?
ⓐ i & ii
ⓑ i & iii
ⓒ ii & iii
ⓓ i, ii & iii **ⓐ**

29. Resistance of copper will increase when — [Ctg.B.-16]
i.   temperature is increased
ii. length is increased
iii. cross sectional area is increased
Which one is correct?
ⓐ i & ii
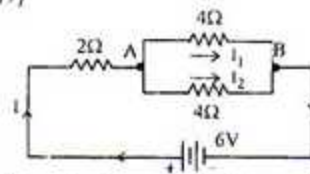ⓑ i & iii
ⓒ ii & iii
ⓓ i, ii & iii **ⓐ**

30. For decoration purpose in wedding ceremony, the circuit used is— [J.B.-16]
i.   series circuit
ii. parallel circuit
iii. parallel combination circuit
Which one is correct?
ⓐ i
ⓑ ii
ⓒ i & ii
ⓓ i, ii & iii **ⓐ**

Answer question no. 31 and 32 on the basis of the stem below: — [D.B.-17]

2Ω A 4Ω B
I_1
I_2
4Ω
$6V$

31. What is voltage between point A and B?
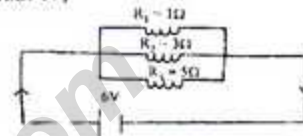ⓐ 2 V
ⓑ 3 V
ⓒ 4 V
ⓓ 6 V **ⓑ**

32. In case of current flowing in the circuit of above stem —
i. $I = I_1 = I_2$
ii. $I_1 = I_2$
iii. $I > I_2$
Which one is correct?
ⓐ i and ii
ⓑ i and iii
ⓒ ii and iii
ⓓ i, ii and iii **ⓓ**

Observe the following circuit and answer the questions no. 33 and 34: [R.B.-17]

$R_1 = 1\Omega$
$R_2 = 3\Omega$
$R_3 = 5\Omega$
6V

33. What is the value of electric current in A?
ⓐ 0.67
ⓑ 3.9
ⓒ 9.2
ⓓ 57.5 **ⓒ**

34. Which one of the following combination of the resistance the flow of current will be minimum? 9+ mean series combination and || mean parallel combination)
ⓐ $R_1 + (R_2 \| R_3)$
ⓑ $R_2 + (R_1 \| R_3)$
ⓒ $R_3 + (R_1 \| R_2)$
ⓓ $R_1 \| R_2 \| R_3$ **ⓒ**

Follow the circuit and answer to the questions no. 35 and 36: [Dj.B.-17]

$R_1 = 2\Omega$
$R_2 = 3\Omega$
$R_3 = 4\Omega$
25V
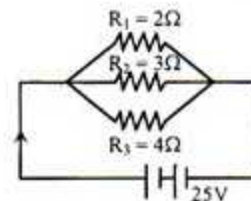
35. What is the equivalent resistance in ohm?
ⓐ 1.083
ⓑ 1.83
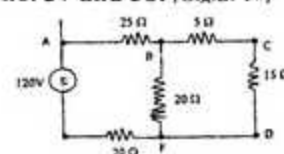ⓒ 1.00
ⓓ 0.923 **ⓓ**

36. If all the resistance are connected in series combination then the electric current —
i.   will decreased
ii. will increased
iii. will remain unchanged
Which one is correct?
ⓐ i
ⓑ ii
ⓒ i and ii
ⓓ i and iii **ⓐ**

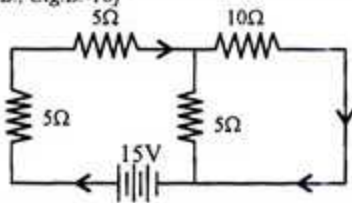Watch the following electric circuit carefully and answer to the questions no. 37 and 38: [Ctg.B.-17]

25Ω 5Ω
120V
15Ω
20Ω
20Ω

37. What is the resistance across AF?
ⓐ 40 Ω
ⓑ 35 Ω
ⓒ 30 Ω
ⓓ 25 Ω **ⓑ**

38. Calculate the current flowing through the circuit —
    ⓐ 0.12 A　　　　ⓑ 0.20 A
    ⓒ 2.2 A　　　　ⓓ 2.8 A　　　　**ⓒ**

Based on the figure given below, answer questions No. 39 and 40 :— [C.B., Ctg.B.-16]

39. What is the equivalent resistance of the circuit?
    ⓐ 7.5 Ω　　　　ⓑ 13.33 Ω
    ⓒ 17.5 Ω　　　　ⓓ 25 Ω　　　　**ⓑ**

40. If 10Ω resistance is removed from the circuit, then—
    i.   flow of current will be decreased
    ii. equivalent resistance will be increased
    iii. potential difference of the two terminals of each resistance will be equal
    Which one is correct?
    ⓐ i, ii & iii　　　　ⓑ i & ii
    ⓒ ii & iii　　　　ⓓ i & iii　　　　**ⓐ**

In a house daily two rice cooker 484W and two water heater 605W of 220V are used 5 hours. [S.B.-16]
On the basis of the above stem answer questions number 41 and 42 :—

41. Find the cost unit per day.
    ⓐ 2.178　　　　ⓑ 5.445
    ⓒ 21.78　　　　ⓓ 54.45
    * N.B– If the power of two rice cookers and two water heaters is considered the answer will be 10.89 unit.
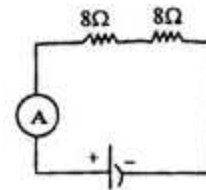
42. Circuit of stem—
    i.   The current is flow 9.9A
    ii. The fuse is suitable of 12A
    iii. Equivalent resistance is 22.22Ω
    Which one of the following is correct?
    ⓐ i & ii　　　　ⓑ ii & iii
    ⓒ i & iii　　　　ⓓ i, ii & iii　　　　**ⓓ**

Observe the following figure and answer questions No. 43 and 44: [D.B.-16]

43. The figure indicates —
    i.   current of resistances are same
    ii. voltage of resistances are same
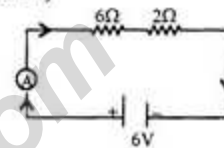   iii. equivalent resistance of the circuit is 16Ω
    Which one is correct?
    ⓐ i　　　　ⓑ ii
    ⓒ iii　　　　ⓓ i, ii and iii　　　　**ⓓ**

44. What is the reading of the ammeter in A?
    ⓐ 8　　　　ⓑ 2
    ⓒ 1　　　　ⓓ 0.5
    Note: If electromotive energy is 5V the answer will be 0.3125

Observe the following circuit and answer the questions no. 45 and 46 — [R.B.-16]

45. What is the reading of the ammeter in ampere?
    ⓐ 4　　　　ⓑ 3
    ⓒ 1.33　　　　ⓓ 0.75　　　　**ⓓ**

46. If all resistors are connected in parallel combination and then what will be the value of equivalent resistance?
    ⓐ Larger than the largest resistance
    ⓑ Smaller than the smallest resistance
    ⓒ Equal to the largest resistance
    ⓓ Equal to the smallest resistance　　　　**ⓑ**