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CHARGE, ELECTRIC FIELD AND ELECTRIC POTENTIAL:

1. Current between two points will not be flowing if :
   (A) both the points have same potentials   (B) circuit is open
   (C) potential difference between the point is zero   (D) all of them

2. If 'I' is the current through a wire and e is the charge of electron, the number of electrons in it second will be given by :
   (A) $\dfrac{Ie}{t}$ (B) Ite   (C) $\dfrac{e}{It}$ (D) $\dfrac{It}{e}$

3. Two particles having charges q_1 and a_2 when kept at a certain distance exert force F on each other. If distance is reduced to half, force between them becomes:
   (A) $\dfrac{F}{2}$ (B) 2F   (C) 4F   (D) $\dfrac{F}{4}$

4. All the following statements are correct except :
   (A) A body is said to be positively charged when it has got excess of electrons
   (B) When a body is charged positively, some electron escape from it
   (C) The presence of moisture in the air reduces the conductivity of charge
   (D) None of the above

5. $\dfrac{4}{25}$ coulomb of charge contain _____electrons :
   (A) 10^{15} (B) 10^{18} (C) 10^{20} (D) None of these

6. Assuming the charge of electron is 1.6×10^{-19} C, the number of electrons passing through a section of wire per second, When the wire carries a current of 1 A is :
   (A) 6.25×10^{18} (B) 1.6×10^{-19} (C) 1.6×10^{19} (D) 0.625×10^{17}

7. 24 J work is done is moving a charge q between two points having potential difference 12 volt. The value of charge q is :
   (A) 2 D   (B) 0.5 C   (C) 24 C   (D) 12 C

8. If current drawn from a cell is increased, then the potential difference across the terminals of the cell will :
   (A) increase   (B) decrease   (C) remains same   (D) none of these

9. The efficiency of a cell is 50 Ah. If will give 0.5 amp current upto :
   (A) 50 h   (B) 100 h   (C) 25 h   (D) 0.5 h

10. A metallic sphere is charged negatively, its mass will :
    (A) increase   (B) decrease   (C) remains same   (D) none of these

11. C.G.S. unit of charge is :
    (A) coulomb   (B) State coulomb   (C) Newton × coulomb   (D) ampere

12. Charge of electron in state coulomb is.

    (A) 1.6×10^{-19}　　　　(B) 4.8×10^{-10}　　　　(C) 3.2×10^{-19}　　　　(D) 4.8×10^{10}

13. When the distance between two charges is reduced to half of the original distance the force between them will remain the same if one of the charge is made :

    (A) double　　　　(B) four times　　　　(C) half　　　　(D) one fourth

OHM'S LAW AND RESISTANCE :

14. A wire of resistance R is cut into n equal parts. These parts are then connected in parallel. The equivalent resistance of combination will be:

    (A) nR　　　　(B) R/n　　　　(C) n/R　　　　(D) R/n^2

15. Three resistances each of $8\,\Omega$ are connected to a triangle. The resistance between any two terminal :

   (A) $12\,\Omega$　　　　(B) $2\,\Omega$　　　　(C) $6\,\Omega$　　　　(D) $\dfrac{16}{3}\,\Omega$

16. The filament of an electric bulb is made of tungsten because :
    (A) its resistance is negligible　　　　　　(B) it is cheaper
    (C) its melting point is high　　　　　　(D) its filament is easily made

17. The smallest resistance that can be obtained from a combination of 'n' identical resistor each of resistance R is :
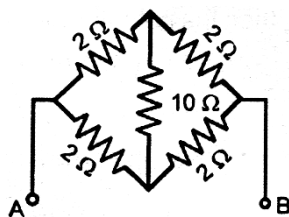
    (A) $\dfrac{R}{n}$　　　　(B) $\dfrac{R}{n^2}$　　　　(C) nR　　　　(D) n^2R

18. In the circuit shown in Fig., the reading of the voltmeter V will be :
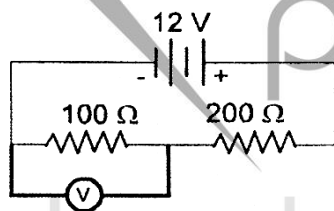
    (A) 4 V　　　　(B) 2 V　　　　(C) 6 V　　　　(D) 3 V

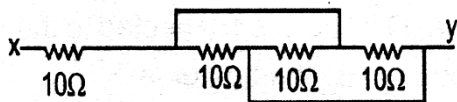19. What is the total resistance across A and B is the circuit shown in Figure?

    (A) $1\,\Omega$　　　　(B) $2\,\Omega$　　　　(C) $1.5\,\Omega$　　　　(D) none of these

20. A person connects four, $\left(\dfrac{1}{4}\,\Omega\right)$ cells in series but one cell has its terminal reversed. The external resistance is $1\,\Omega$. If each cell ahs an e.m.f. of 1.5 V, the current flowing is:

    (A) $\dfrac{4}{3}$ A　　　　(B) $\dfrac{3}{4}$ A　　　　(C) 1.5 A　　　　(D) zero
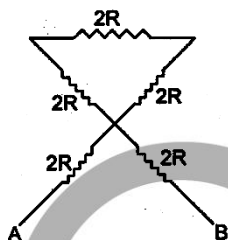
21. The equivalent resistance between x and y is:

(A) $\dfrac{10}{3}\,\Omega$ (B) $\dfrac{40}{3}\,\Omega$ (C) $\dfrac{3}{10}\,\Omega$ (D) $10\,\Omega$

22. A wire of resistance R is stretched to four times its initial length . What will be the new resistance :

(A) 16 R (B) 9 R (C) 4 R (D) R

23. In the given circuit, the equivalent resistance between points A and B will be.

(A) $\dfrac{8}{3}$ R (B) 4R (C) 6R (D) 10R

HEATING EFFECT OF CURRENT, ELECTRIC ENERGY AND ELECTRIC POWER :

24. Correct power rating of bulb used in our country (India):

(A) 100 volt (B) 100 volt (C) 100 W - 220 volt (D) 10 volt

25. Number of Joules in kWh is :

(A) 3.6×10^{7} (B) 3.6×10^{6} (C) 3.6×10^{5} (D) 3.6×10^{4}

26. An electric iron of heating element of resistance $88\,\Omega$ is used at 220 volt for 2 hours. The electric energy spent, in unit, will be:

(A) 0.8 (B) 1.1 (C) 2.2 (D) 8.8

27. Two identical heater wires are first connected in series and then in parallel with a source of electricity. The ratio of heat produced in the two cases is :

(A) 2 : 1 (B) 1 : 2 (C) 4 : 1 (D) 1 : 4

28. You are given three bulbs 25 W, 40 W and 60 W. Which of them has the lowest resistance?

(A) 25 watt bulb (B) 40 watt bulb (C) 60 watt bulb (D) insufficient data

29. An electric heater can boil a certain amount of water in 10 minute and another heater can do it in 15 minute, both working at the same voltage. If the two heaters are connected in parallel across the same voltage as before how much time will they take to boil the same amount of water?

(A) 9 min (B) 12.5 min (C) 7.5 min (D) 6 min

30. A heater is joined in parallel with a 60 W bulb is connected to the mains. If 60 W bulb is replaced by a 100 W bulb. The change in heat produced by the heater is :

(A) more   (B) less   (C) same   (D) none of these

CHEMICAL EFFECT OF CURRENT:

31. Faraday constant F, Avogadro number N and electronic charge e are related with each other by "

(A) $F = \dfrac{N}{e}$ (B) $F = \dfrac{e}{N}$ (C) $F = Ne$ (D) $F = N e^2$

32. On passing a charge of 2 faraday through a copper voltammeter, the mass of copper ions liberated will be :

(A) 128 g   (B) 16 g   (C) 32 g   (D) 64 g

33. How much electricity must pass through acidulated water to release 22,400 cm^3 of hydrogen at N.T.P. ?

(A) 96500 C   (B) 193000 C   (C) 22.4 C   (D) 95.5 C

34. Faraday constant :

(A) depends on the amount of the electrolyte

(B) depends on the current in the electrolyte

(C) is a universal constant

(D) depends on the amount of charge passed through the electrolyte.

35. Examples of primary cells are :

(A) Voltaic   (B) Daniel   (C) Dry cell   (D) All of them

36. Which is not true for electrolysis :

(A) Electrolysis is used for depositing thin layer of one metal on other

(B) Electrolysis is used for manufacturing some gases and compounds

(C) Electrolysis can be used for refining of metals

(D) Electrolysis can be used for plating of metals like gold & silver on other metals

37. S.I. unit of electrochemical equivalent is :

(A) kg/C   (B) g/C   (C) C   (D) A

38. Which is true for electrolysis :

(A) Electrolysis is used for depositing thin layer of one metal on other

(B) Electrolysis is used for manufacturing some gases and compounds.

(C) Electrolysis can be used for refining of metals

(D) All are correct