EVERWIN MATRIC. HR. SEC. SCHOOL

STD: XII Material of the month-June

Ln.2 Current Electricity

1. A charge of 60c passes through an electric lamp in 2 minutes. Then the current in the lamp is _____.
   a) 30A b) 1A c) 0.5A d) 5A
2. The material through which electric charge can flow easily is
   a) quartz b) mica c) germanium d) copper
3. The current flowing in a conductor is proportional to _____.
   a) drift velocity b) $\frac{1}{area\ of\ cross\ section}$ c) $\frac{1}{no.of\ electrons}$
   d) square of area of cross section
4. A toaster operating at 240V has a resistance of 120Ω. The power is _____.
   a) 400W b) 2W c) 480W d) 240W
5. If the length of a copper wire has a certain resistance R, then on doubling the length its specific resistance _____.
   a) will be doubled b) will become $\frac{1}{4th}$
   c) will become 4 times d) will remain the same
6. When two 2Ω resistance are in parallel, the effective resistance is _____.
   a) 2 Ω b) 4 Ω c) 1 Ω d) 0.5 Ω
7. In the case of insulators, as the temperature decreases, resistivity _____.
   a) decreases b) increases c) remain constant
   d) becomes zero
8. If the resistance of the coil is 2 Ω at 0^0c and α=0.004/0^0c, then its resistance at 100^0c is _____.
   a) 1.4 Ω b) 0 Ω c) 4 Ω d) 2.8 Ω
9. According to Faraday's law of electrolysis, when a current is passed, the mass of ion deposited at the cathode is independent of _____.
   a) current b) charge c) time d) resistance
10. When n resistors of equal resistances (R) are connected in series, the effective resistance is _____.
    a) $\frac{n}{R}$ b) $\frac{R}{n}$ c) $\frac{1}{nR}$ d) nR
11. The relation between current and drift velocity is
    a) I=$\frac{nAV_d}{e}$ b) I=nAV$_d$e c) I=$\frac{neV_d}{A}$ d) I=$_{nAVd}$E
12. When the diameter of a conductor is doubled, its resistance
    a) decreases twice b) decreases four times
    c) decreases sixteen times d) increases four times
13. The electrical resistivity of a thin copper wire and a thick copper red are respectively P_1 Ω m and P_2 Ωm. Then _____.
    a) $P_1>P_2$ b) $P_2>P_1$ c) $P_1=P_2$ d) $\frac{P_1}{P_2}=\alpha$
14. The unit of conductivity is _____.
    a) mho b) ohm c) ohm-m d) mho-m^{-1}
15. In the case of insulators, as the temperature increases, resistivity _____.
    a) decrease b) increases c) remains constant
    d) becomes zero
16. The transition temperature of mercury is _____.
    a) 4.2^{0}c b) 4.2k c) 2.4^{0}c d) 2.4k
17. The colour code on a carbon resistor is red-red black. The resistance of the resistor is _____.
    a) 2.2 Ω b) 22 Ω c) 220 Ω d) 2.2k Ω
18. The brown ring at one end of a carbon resistor indicates a tolerance of _____.
    a) 1% b) 2% c) 5% d) 10%
19. Resistance of a metal wire of length 10cm is 2 Ω. If the wire is stretched uniformly to 50cm, then the resistance is _____.
    a) 25 Ω b) 10 Ω c) 5 Ω d) 50 Ω
20. When 'n' resistors of equal Resistance (R) are connected in series and in parallel respectively, then the ratio of their effective resistance is _____.
    a) 1 : n_2 b) n_2 : 1 c) n : 1 d) 1 : 1
21. The resistance of a nichrome wire at 0^0c is 10 Ω. If its temperature co-efficient of resistance is 0.004/^{0}c, find its resistance at boiling point of water
    a) 14 Ω b) 13 Ω c) 10 Ω d) 15 Ω
22. A cell of emf 2.2V sends a current of 0.2A through a resistance of 10 Ω. The internal resistance of the cell is
    a) 0.1 Ω b) 1 Ω c) 2 Ω d) 1.33 Ω

23. The resistance of the filament of a 110W, 220V electric bulb is
a) 440 Ω b) 220 Ω c) 484 Ω d) 848 Ω

24. The unit of electro chemical equivalent is
a) kg.coulomb b) $\frac{Kg}{ampere}$ c) $\frac{Kg}{ampere\ sec}$ d) $\frac{coulomb}{Kg}$

25. A graph is drawn taking potential difference across the ends of a conductor along x-axis and current through the conductor along the y-axis. The slope of the straight line given
a) resistance b) conductance c) resistivity
d) conductivity

26. Free electrons are very loosely attached to the _____.
a) nuclei b) protons c) atoms d) neutrons

27. The thermodynamic internal energy of the materials is sufficient to liberate
a) inner electrons b) outer electrons c) protons d) neutrons

28. The external energy necessary to drive the free electrons in a definite direction is called _____.
a) current b) resistance c) emf d) power

29. If a charge 'q' coulomb passes through any cross section of a conductor in time 't' second, then the current is given by
a) I=qt b) I=$\frac{t}{q}$ c) I=$\frac{q}{t}$ d) I=$\frac{1}{qt}$

30. Force experienced by a free electron in an electric field 'E' is
a) Ee b) $\frac{E}{e}$ c) $\frac{e}{E}$ d) J^2

31. Acceleration experienced by an electron of mass 'm' and charge 'E' in an electric field 'E' is a=_____.
a) $\frac{e\tau}{m}$ b) $\frac{eE}{m}$ c) $\frac{\mu E}{m}$ d) $\frac{Em}{e}$

32. Expression for mobility is μ=_____
a) $\frac{Ee}{m}$ b) $\frac{E\tau}{m}$ c) $\frac{e\tau}{m}$ d) $\frac{me}{\tau}$

33. The conductivity of a material is obtained by the formula
a) $\sigma=\frac{RA}{l}$ b) $\sigma=\frac{lA}{R}$ c) $\sigma=\frac{l}{RA}$ d) $\sigma=\frac{PA}{R}$

34. The resistance of a conductor of unit length having unit area of cross section is _____.
a) resistivity b) conductivity c) conductance d) capacitance

35. Expression for electric resistance (R) is _____.
a) R=$\frac{mL}{nAe^n\tau}$ b) R=$\frac{nL}{mAe^2\tau}$ c) R=$\frac{nAe^2\tau}{mL}$ d) R=$\frac{mLV}{nAe^2\tau}$

36. Relation between current density and drift velocity is
a) I=JneV$_d$ b) V$_d$=Jne c) V$_d$=neJA d) J=neV$_d$

37. The unit of current density is _____.
a) Am^{-1} b) Am^2 c) Am^{-2} d) Am

38. Drift velocity of electrons is of the order of _____.
a) 0.2 cms^{-1} b) 0.1 cms^{-1} c) 0.1 ms^{-1} d) 1 cms^{-1}

39. The unit of mobility is _____.
a) $m^2v^1s^{-1}$ b) $m^2v^{-1}s^1$ c) $m^{-2}v^{-1}s^{-1}$ d) $m^2v^{-1}s^{-1}$

40. Drift velocity of electrons is proportional to _____.
a) electric field intensity b) charge of protons
c) area of the conductor d) none of these

41. Materials having resistivity of the order of 10^{-6}-10^{-8} Ωm are classified as _____.
a) insulators b) conductors c) semi conductors d) none

42. If the resistivity of materials ranges from 10^8-10^{14} Ωm, then they are called as _____.
a) insulators b) conductors c) semi conductors d) none

43. Semi conductors have resistivity of the order of _____.
a) 10^{-6}-10^{-8} Ωm b) 10^8-10^{14} Ωm c) 10^{-2}-10^4 Ωm d) 10^{-2}-10^4 Ωm

44. Discontinuous change in specific heat of a material occurs at
a) transition temperature b) high temperature
c) OK d) room temperature

45. Resistivity of mercury is zero at _____.
a) 2.4k b) 4.2^0c c) 4.2k d) 2.4^0c

46. At the transition temperature the electrical resistivity drops to
a) zero b) maximum c) infinity d) none

47. At the transition temperature the conductivity becomes _____.
a) zero b) infinity c) minimum d) none

48. The tolerance of silver, gold, red and brown rings in carbon resistors are _____ respectively.
a) 1%, 2%, 5% and 10% b) 10%, 2%, 5% and 1%
c) 10%, 5%, 1% and 2% d) 10%, 5%, 2% and 1%

49. The tolerance of carbon resistors without colour ring is
a) 20% b) 10% c) 2% d) 25%

50. The colour code for 1 in carbon resistors is _____.
a) Black b) Brown c) Silver d) Red

51. The core of a carbon resistor is made of _____.

a) Carbon b) Silver c) Ceramic d) Iron

52. In a thermocouple, the temperature of the cold junction is 20^0c, the temperature of inversion is 520^0c. The neutral temperature is _____.
    a) 500^0c b) 540^0c c) 270^0c d) 510^0c
53. A material with negative temperature coefficient of resistance is called _____.
    a) metal b) alloy c) thermistor d) thermometer
54. Due to ageing, the internal resistance of a cell _____.
    a) increases b) decreases c) does not change
    d) becomes zero
55. The temperature co-efficient of manganin is _____.
    a) infinity b) high c) zero d) low
56. The equation for electric power (P) is _____.
    a) P=VIt b) P=VI c) $P=V^2R$ d) $P=I^2Rt$
57. One Kilowatt hour is equal to _____.
    a) $3.6x10^5$J b) $0.36x10^5$J c) $36x10^5$J d) $36x10^3$J
58. The positive ions which are mostly formed from metals or hydrogen are called _____.
    a) anions b) cations c) positive particles d) atoms
59. When one coulomb of charge is passed through the electrolyte, the mass of substance liberated is called _____.
    a) electrochemical equivalent b) weight c) current
    d) electrical resistance
60. Unit of electrochemical equivalent is _____.
    a) cKg^{-1} b) Kgc c) Kgc^{-2} d) Kgc^{-1}
61. The electrodes used in Voltaic cell are _____.
    a) Cu, Zn b) Cu, Fe c) Cu, C d) Fe, Zn
62. An electrical instrument of resistance 30 Ω is operated at 240v. The power is _____.
    a) 240w b) 1290w c) 920w d) 1920w
63. If two resistors of resistances 200 Ω and 0.1k Ω are connected in series then the effective resistance of the system is _____.
    a) 200.1 Ω b) 300 Ω c) 201K Ω d) 2.1K Ω
64. The number of electrons flowing per second through a conductor, when a current of 3.2A flows through it is _____.
    a) $2x10^{19}$ b) $3x10^{18}$ c) $6.2x10^{18}$ d) $6.25x10^{19}$
65. Two resistances 6 Ω and 4 Ω are connected in parallel and the combination is connected in series with a resistance of 2.6 Ω and an accumulator of emf 2v, then the current in the circuit is _____.
    a) $\frac{5}{2A}$ b) $\frac{5}{4A}$ c) $\frac{2}{5A}$ d) 5A
66. In a metre bridge, with a standard resistance of 50hm in the right gap, the ratio of balancing length is 3:2. The value of the other resistance is _____.
    a) $\frac{10}{3\Omega}$ b) $\frac{10}{9\Omega}$ c) $\frac{15}{2\Omega}$ d) $\frac{3}{5\Omega}$
67. A copper wire of $10^{-6}m^2$ area of cross section carries a current of 1A. The current density is _____.
    a) $2x10^6$ A/m^2 b) $0.1x10^6$ A/m^2 c) $1x10^{-6}$ A/m^2
    d) $1x10^6$ A/m^2
68. A 750W power iron box is used for 4 hours. If the cost per unit is 75 paise, the total expense is _____.
    a) Rs 22.50 b) Rs 5.25 c) Rs 2.25 d) Rs 3.00
69. In a wheatston's bridge P=1000 Ω, Q=10,000 Ω and R=20 Ω. If the galvanometer shows zero deflection, the value of S is
    a) 20 Ω b) 200 Ω c) 2 Ω d) 2000 Ω
70. An electric iron of resistance 80 Ω is operated at 200V for two hours. The electric energy consumed is _____.
    a) 1 wh b) 10kwh c) 1kwh d) 0.1kwhP