

Physics XII Chapter: Magnetism & Electromagnetism

1. Which one the following is not a magnetic material:

- a). Iron,
- b). Nickel
- c). Cobalt
- d). Silver

2. A body that attracts small pieces of iron and points towards north-south direction when suspended freely, is called:

- a). Magnet
- b). Conductor
- c). Magnetism
- d). None of these

3. Like poles of two magnets:

- a). Attract
- b). Repel
- c). Neither attract nor repel
- d). None of these

5. Unlike poles of two magnets:

- a). Attract
- b). Repel
- c). Neither attract nor repel
- d). None of these

6. The magnetism of the magnet is concentrated in the:

- a). North Pole
- b). South Pole
- c). North and South Pole
- d). At the middle

7. If a magnet is broken into two pieces, then:

- a). Two magnets are obtained
- b). North pole is obtained
- c). South pole is obtained
- d). One North Pole and one South Pole is obtained

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8. The space surrounding a magnet in which its magnetic effect is felt is called:

- a). North Pole
- b). South Pole
- c). Middle Point
- d). Magnetic Field

9. The intensity of the magnetic field near its poles is:

- a). Zero
- b). Maximum
- c). Minimum
- d). None of these

10. If the magnetic field is uniform, then the magnetic lines of forces are:

- a). Curved
- b). Parallel
- c). Perpendicular
- d). None of these

11. The magnetic field is represented with:

- a). Magnetic lines of forces
- b). Magnetic induction
- c). North Pole
- d). South Pole

12. The path along which an isolated north pole of a magnet moves in the magnetic field is called:

- a). Magnetic field
- b). Magnetic field lines
- c). North Pole
- d). South Pole

13. Two magnetic lines of force:

- a). an intersect each other
- b). Do not intersect each other
- c). Can repel each other
- d). Can attract each other

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14. _____ behaves like a stretched rubber string which tends to contract longitudinally and expand laterally:

- a). Magnets
- b). Magnetic Force
- c). Electric Lines of force
- d). Magnetic lines of force

15. The magnetic lines of force pass through _____, as compared to air.

- a). Water
- b). Iron
- c). Rubber
- d). None of the above

16. A substance which behaves like a magnet in the presence of a strong field is called:

- a). Magnets
- b). Ferro magnets
- c). Electromagnets
- d). None of these

17. A magnet can be demagnetized by:

- a). Heating
- b). By dropping it several time
- c). Breaking into two pieces
- d). Both heating and by dropping it several time

18. The field magnet around a moving charge is called:

- a). Electric Field
- b). Magnetic Field
- c). Gravitational Field
- d). None of the above

19. The direction of magnetic lines of force is given by the:

- a). Head to tail rule
- b). Right hand rule
- c). Left hand rule
- d). None of these

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20. _____ was the first to note the presence of magnetic force in a wire in which currents are flowing.

- a). Newton
- b). Ampere
- c). Oersted
- d). None of these

21. If two wires in which currents are flowing in the same direction are placed parallel and close to each other then they will:

- a). Repel each other
- b). Attract each other
- c). Neither attract nor repel each other
- d). None of the above

22. If two wires in which currents are flowing in the opposite direction are placed parallel and close to each other then they will:

- a). Repel each other
- b). Attract each other
- c). Neither attract nor repel each other
- d). None of the above

23. The charge moving parallel to the magnetic field 'B' with a certain velocity 'v' experiences:

- a). No force
- b). Maximum Force
- c). Minimum Force
- d). None of these

24. The charge moving perpendicular to the magnetic field 'B' with a certain velocity 'v' experiences:

- a). No force
- b). Maximum Force
- c). Minimum Force
- d). None of these

25. The magnetic force F_m acting on charge 'q' when it moves with a velocity 'v' through a magnetic field 'B' is given by:

- a). $F_m = q v \times B$
- b). $F_m = qv^2 \times B$

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- c). $F_m = q E$
- d). None of these

26. The magnitude of a magnetic force 'F' acting on charge 'q' when it moves with a velocity 'v' through a magnetic field 'B' is given by:

- a). $F = q v B \sin \theta$
- b). $F = qv^2 B \sin \theta$
- c). $v B \sin \theta$
- d). None of these.

27. In a magnetic field the charge at rest experiences:

- a). No force
- b). Maximum force
- c). Minimum force
- d). None of these

28. The charge, which moves along a line parallel to the direction of magnetic lines of force, experiences:

- a). No force
- b). Maximum force
- c). Minimum force
- d). None of these

29. Maximum force is experienced by a charged particle when it moves:

- a). Parallel to magnetic field
- b). With zero velocity
- c). None of these

30. The S.I unit of magnetic induction B is:

- a). Volt
- b). Watt
- c). Farad
- d). Tesla

31. When an alternating accelerating field is applied to a charge it produces:

- a). Sound waves
- b). Electromagnetic waves
- c). X-rays

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d). Gamma rays

32. The wave which require no medium for the propagation are known as:

- a). Sound waves
- b). Mechanical waves
- c). Electromagnetic waves
- d). None of these

33. An electromagnetic wave electric and magnetic fields are:

- a). Parallel to each other
- b). Perpendicular to each other
- c). Opposite to each other
- d). None of these

34. The velocity of electromagnetic waves depend upon:

- a). Magnetic permeability
- b). Electric permittivity
- c). Both magnetic and electric permittivity
- d). None of these

35. Substances having electrical resistivity intermediate between conductors and insulators are called:

- a). Superconductors
- b). Semiconductors
- c). n-type conductors
- d). p-type conductors

36. In Semiconductors _____ are responsible for electrical conduction.

- a). Protons
- b). Electrons
- c). Holes
- d). Electrons
- e). holes

37. When a Penta valent material like As, is added to tetra valent material such as Germanium semi conductor obtained is of:

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- a).n-type material
- b).p-type material
- c).Semiconductors
- d).None of these

38. In n-type materials:

- a). Holes are majority carriers
- b). Electrons are majority carriers
- c). Electrons are minority carriers
- d).None of these

39. When a trivalent material is added to Germanium or silicon, semiconductor obtained is:

- a). n-type material
- b). p-type material
- c). Semiconductor
- d). None of these

40. In p-type materials:

- a). Holes are majority carriers
- b). Electrons are majority carriers
- c). Electrons are minority carriers
- d). None of these

41. Velocity of light is:

- a). 3×10^8 m/s
- b). 3×10^6 m/s
- c). 3×10 cm/s
- d). None of these

42. The electromagnetic waves emitted by the I.C circuit of aerial of a transmitting station are of:

- a). Zero amplitude
- b). Unit amplitude
- c). Constant amplitude
- d). Variable amplitude

43. The electromagnetic waves emitted by the I.C circuit of aerial of a transmitting station have frequency of the range:

- a). 102Hz

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- b). 104Hz
- c). 106Hz
- d). 108Hz

44. A crystal diode is used for rectification of :

- a). AC current
- b). DC current
- c). Electromagnetic waves
- d). None of the above

45. A geometric shape of a solid obtained by regular, repetitive, three-dimensional arrangements of its molecules, atoms or ions is called a:

- a). Crystal
- b). Lattice
- c). Crystal plane
- d). None of these

46. Two substances having the same crystal structure are called:

- a). Isomorphism
- b). Substance
- c). Allotropic substances,
- d). Polymorphous substances

47. The substance, which exists in two or more crystal forms under different conditions is called:

- a). Isomorphism Substance
- b). Allotropic substances
- c). True substances
- d). Polymorphous substances

48. A regular, repetitive, three-dimensional pattern of points, which represent the position of molecules, atoms or ions in the crystal, is called:

- a). Unit cell
- b). Space lattice
- c). Crystal
- d). True substance

49. The smallest portion of a crystal lattice that if repeated in three-dimensions will generate the entire lattice is called:

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- a). Unit cell
- b). Lattice plane
- c). Crystal
- d). None of these

50. When a crystal is subjected to stress, it tends to break or fracture along definite direction which is characteristic of a sample. This is called:

- a). Cleavage
- b). Allotropy
- c). Anisotropy
- d). None of these

51. The property due to which the size or shape of a lattice is not important is called:

- a). Cleavage
- b). Anisotropy
- c). Homogeneity
- d). None of these

52. In a crystal the density of atoms or molecules does not vary from direction to direction. This is known as:

- a). Cleavage
- b). Anisotropy
- c). Homogeneity
- d). None of these

53. If one atom or molecule lies out each of the eight corners of a cube, it is called:

- a). Simple cube
- b). Face centered cube
- c). Body centered cube
- d). None of these

54. _____ is a cubic pattern having one extra atom or molecule at the centre of each of the six faces of the cube.

- a). Simple cube
- b). Face centered cube
- c). Body centered cube
- d). None of these

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55. _____ is a pattern which has got one more atom at the centre of a simple cube.

- a). Simple cube
- b). Face centered cube
- c). Body centered cube
- d). None of these

56. The electrons, which can wander in the solid, are known as:

- a). Valence electron
- b). Free electron
- c). Loosely bound electrons
- d). None of these

57. _____ of the following theories could not explain completely the behavior of conductors, insulators, and semiconductors.

- a). Energy band theory
- b). Free electron theory
- c). Valence electron theory
- d). None of these

58. The electrons in a solid crystal are supposed to have different energy levels which can be found by the solution of:

- a). Maxwell's equation
- b). Schrodinger's wave equation
- c). Gas equation
- d). None of these

59. The solution of Schrodinger's wave equation shows that the electrons can exist in some ranges of energy called:

- a). Permissible energy levels
- b). Energy bands
- c). Conduction band
- d). Forbidden energy levels

60. The permissible energy levels taken in groups are called:

- a). Permissible energy levels
- b). Energy bands
- c). Conduction bands

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d). Forbidden energy levels

61. The materials in which valence band and conduction band overlaps are called:

- a). Insulators
- b). Conductors
- c). Semiconductors
- d). Superconductors

62. The material in which the highest occupied energy level is completely filled is called:

- a). Insulator
- b). Conductor
- c). Semiconductor
- d). Superconductor

63. The material, in which the gap between the filled energy band and next higher permitted energy band is small, is called:

- a). Insulator
- b). Conductor
- c). Semiconductor
- d). Superconductor

64. The substances with resistivity of order of 10^{-4} ohm-m are called:

- a). Insulators
- b). Semiconductors
- c). Conductors
- d). Good conductors

65. The substances with resistivity of the order of 10^{-8} ohm-m are called:

- a). Insulators
- b). Semiconductors
- c). Conductors
- d). Good conductors

66. At temperature near absolute zero, a pure semiconductor behaves like:

- a). n insulator
- b). A conductor
- c). A superconductor

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d). None of these

67. A junction between p-type material and n-type material is called as

- a). Diode
- b). Rectifier
- c). Transistor
- d). Amplifier

68. The semi-conductor diode has the property of:

- a). One way conduction
- b). Two way conduction
- c). Zero conduction
- d). Zone of these

69. A diode can be used as:

- a). Oscillator
- b). Rectifier
- c). Transistor
- d). Amplifier

70. If p-type material of the p n -junction is connected with positive terminal of the battery and n-type material with negative terminal of the battery, it is said to be:

- a). Forward biased
- b).Reversed biased
- c). Zero biased
- d). None of these

71. If p-type material of the p n-junction is connected with negative terminal of the battery and n-type material with positive terminal of the battery, it is said to be:

- a). Forward biased
- b). Reversed biased
- c). Zero biased
- d). None of these

72. A device, which converts an alternating current to a direct current, is called:

- a). Oscillator
- b). Rectifier
- c). Amplifier

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d). P-type material

73. A thin layer of one type of semiconductor material sandwiched between two relatively thick pieces of other type is termed as:

- a). Diode
- b). Rectifier
- c). Transistor
- d). Oscillator

74. A transistor consists of:

- a). One p n-junction
- b). Two p n-junctions
- c). Three p n-junctions
- d). None of these

75. For normal transistor operation, Emitter - Base junction is always:

- a). Reversed biased
- b). Forward biased
- c). Zero biased
- d). All of these

76. A transistor can be used as:

- a). Diode
- b). Rectifier
- c). Amplifier
- d). All of these

77. The transistor is also used as:

- a). Diode
- b). Switching device
- c). Rectifier
- d). P-type material

78. If we use two diodes and a centre tapped transformer, we will get:

- a). Half wave rectification
- b). Full wave rectification
- c). AC current

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d). All of these

79. A forward biased p-n semiconductor diode is called:

- a). L.E.D
- b). Photodiode
- c). Photovoltaic cell
- d). Transistor

80. _____ is generally a reversed biased p-n junction in which light is allowed to fall on the p-layer through a window provided for this purpose.

- a). L.E.D
- b). Photodiode
- c). Photovoltaic cell
- d). Transistor

81. Transistors has replaced:

- a). Diodes
- b). Vacuum tubes
- c). Rectifiers
- d). Photovoltaic cell