

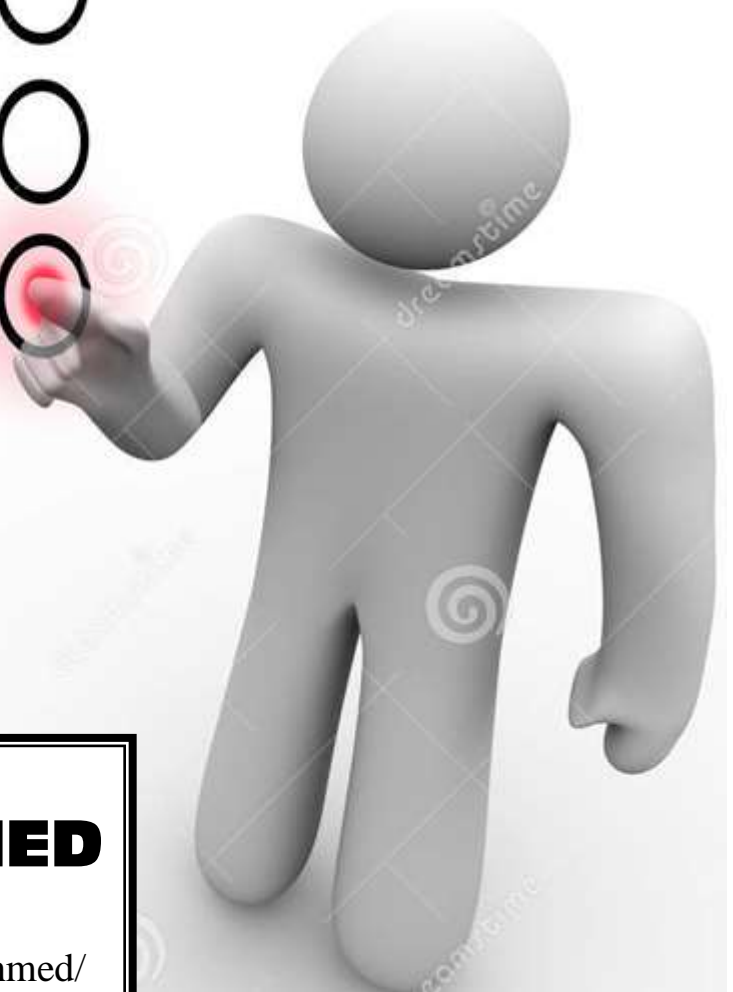
XII PHYSICS

MULTIPLE CHOICE QUESTIONS

A ☐ **B** ☐

C ☐ **D** ☐

ALL THE ABOVE ☒



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CH – 11:

HEAT

[2003,2008]

1. If the volume of a given mass of a gas is doubled without changing its temperature, the pressure of the gas is:
- a) Reduced to $\frac{1}{2}$ of the initial value b) The same as the initial value
c) Reduced to $\frac{1}{4}$ of the initial value d) Double of the initial value

[2009]

2. Boyle's law is an example of:
- a) Latent heat process b) Isothermal process c) Adiabatic process d) Mechanical process

[2007, 1996]

3. The volume of a given gas at constant pressure becomes zero at:
- a) 273K b) 273°C c) -273K d) -273°C
4. Absolute Zero is considered as that temperature at which:
- a) All liquids become gasses b) All gases become liquids
c) Water freezes d) None of them

[2003]

5. According to Charles' Law:
- a) $PV = \text{Constant}$ b) $V/T = \text{Constant}$ c) $VT = \text{Constant}$ d) $P/V = \text{Constant}$

[2001]

6. Real gas molecules do not strictly obey gas law at:
- a) High pressure and low temperature b) Low pressure and high temperature
c) Low pressure and high temperature d) None of the above

[1988]

7. The graph of pressure and volume of certain mass of a gas at constant temperature is a:
- a) Parabola b) Hyperbola c) Straight line d) None of these

[2002]

8. The S.I. unit of heat is:
- a) Joule b) Calorie c) Centigrade d) Fahrenheit

[2014]

9. The average internal energy of an ideal gas is called:
- a) Pressure b) Volume c) Temperature d) Heat

[2013, 1988]

10. The sum of the total energy of motion of all the particles measures the
- a) Temperature b) Specific heat c) Quantity of heat d) None of these

[2014, 2009]

11. Heat energy cannot be measured in:
- a) Joule b) Kelvin c) BTU d) Calories\

12. Heat is produced by:

a) By rubbing b) By friction c) By Mechanical d) All of these

13. Something which flows from a hot body to a cold body is known as:

a) Specific heat b) Heat c) Internal energy d) Temperature

[2007, 2003, 1999]

14. The temperature at which centigrade scale is equal to Fahrenheit scale is:
- a) 0° b) -32° c) -40° d) -273°

[2006]

15. In Celsius scale 1°C in magnitude is equal to:
- a) 32°F b) 16°F c) 0°F d) 1.8°F

[2010]

16. On Fahrenheit scale the temperature of 50°C will be:
- a) 40°F b) 10°F c) 122°F d) 105°

[2005]

17. The absolute temperature corresponding to 212°F is:

- a) 485K b) 373K c) 161K d) 100K

[2012, 2002]

18. The temperature on Fahrenheit scale corresponding to Absolute Zero is:

- a) 32°F b) -180°F c) -460°F d) 212°F

[2002]

19. Zero on the Celsius scale is equal to:

- a) 273K b) 32K c) 100K d) 212K

[2007, 2003, 2000]

20. 273 Kelvin corresponds to:

- a) 273°C b) -32°F c) 0°C d) -273°C

[2006, 2003]

21. One cubic meter volume is equal to:

- a) 10^2 cm^3 b) 10^3 cm^3 c) 10^6 cm^3 d) 10^{-3} cm^3

[2015, 2013, 2011, 2008]

22. The kinetic energy per mole of a ideal gas is:

- a) $\frac{3}{2} k T$ b) $\frac{2}{3} k T$ c) $\frac{3}{2} R T$ d) $n R T$

[1999, 1988]

23. The average K.E. of a molecule of a perfect gas is

- a) $\frac{1}{3} K T$ b) $\frac{3}{2} K T$ c) $\frac{2}{3} K T$ d) None of these

[2001]

24. The K.E of the molecules of an idea gas at absolute zero temperature will be:

- a) Infinite b) Zero c) Very high d) Below zero

[2007]

25. According to kinetic theory of a gases the absolute temperature of a perfect gas is

- a) Directly proportional to average translations kinetic energy.
b) Directly proportional to both kinetic energy and potential energy.
c) Independent of the kinetic energy. d) Inversely proportional to kinetic energy.

[1997]

26. A gas exerts pressure on the walls of the containing vessel because:

- a) It possesses momentum b) The gas molecules collide with each other
c) The gas has a finite volume d) None of these

27. The root mean square velocity of gas:

- a) Directly proportional to the density b) Inversely proportional to the density
c) Directly proportional to the square root of the density
d) Inversely proportional to the square root of the density

28. The pressure exerted by the gas is:

- a) Directly proportional to the velocity of molecules
b) Directly proportional to the mean square velocity of the molecules
c) Directly proportional to the mean velocity of the molecules
d) Inversely proportional to the mean velocity of the molecules

29. The volume of a constant mass of gas in cylinder is reduced at constant temperature.

The pressure exerted by the molecules of the gas increases because:

- a) The gas molecules speed up b) The density of the gas increases
c) The gas molecules collides with each other more often d) None of these

[2005]

30. R.M.S velocity of a gas molecule at absolute zero temperature is:

- a) $9 \times 10^6 \text{ m/sec}$ b) $3 \times 10^3 \text{ m/sec}$ c) 273 m/sec d) Zero

31. At same temperature gases of lighter molecular mass have:

- a) Smaller rms speeds b) Larger rms speeds
c) Same rms speeds d) None of these

32. The average kinetic energy of the molecules of a body determines:
a) Volume b) Temperature c) Pressure d) Heat
- [2002]
33. The pressure exerted by a column of mercury 76cm high at 0°C is called:
a) 1 litre b) 1cm^3 c) 1 atmosphere d) 1 N/m^2
- [1988]
34. A substance expands on freezing. Increases of pressure _____ the freezing point.
a) Decreases b) Increases c) Does not change d) None of these
- [2008]
35. A bimetallic thermostat works on the principle of :
a) Linear expansion b) Bulk expansion
c) Differential liner expansion d) All of these
36. The two object are in thermal equilibrium when they have the same:
a) Kinetic energy b) Temperature c) Thermal energy d) Potential energy
37. A bimetallic strip can be used to make a:
a) Thermometer b) Barometer c) Ammeter d) Voltmeter
38. A device which maintains the temperature is:
a) Thermometer b) Thermostat c) Calorie meter d) None of these
39. Bimetallic strip work on the principle that different materials have:
a) Equal coefficient of linear expansion b) Equal coefficient of volume expansion
c) Different coefficient of linear expansion d) None of these
- [2009]
40. Thermostat is a device used to keep the:
a) Temperature constant b) Entropy constant c) Heat constant d) Pressure constant
- [2015]
41. The unit of co-efficient of thermal expansion is:
a) m K b) m / K c) K^{-1} d) K
- [2008]
42. A thermodynamic process in which the change in volume of the system is zero tells that:
a) The work done by the system is maximum b) The work done on and by the system is zero.
c) The work done on the system is maximum d) None of the above
- [2007, 2000]
43. Two ends A & B of a rod are at temperature -10°C and -30°C . The heat will flow from:
a) -30°C to -10°C b) will not flow at all c) -10°C to -30°C d) None of the above.
- [2012, 2006]
44. The maximum work done can be measured in the process called:
a) Isobaric b) Isochoric c) Isothermal d) Adiabatic
- [2005]
45. A domestic pressure cooker is based on:
a) Adiabatic process b) Isothermal process c) Isobaric process d) Isochoric process
- [2005]
46. The difference of molar specific heats at constant pressure and at constant volume per mole is
a) Molar Heat b) Heat constant c) Boltzman constant d) Gas constant
- [2004, 1996]
47. During an Adiabatic change, the pressure and the volume formula of a gas is given by:
a) $PV = \text{Const}$ b) $PV^{\gamma} = \text{Const}$ c) $(PV)^{\gamma} = \text{Const}$ d) None of these
- [2004]
48. The unit of specific heat
a) $\text{J Kg}^{-1} ^{\circ}\text{C}^{-1}$ b) $\text{J Kg}^{-1} \text{K}^{-1}$ c) $\text{J Kg} ^{\circ}\text{C}$ d) Both a and b
- [2003]
49. The quantity of heat required to raise the temperature of 1 gram of a substance through 1°C is known as :
a) Specific Heat b) Latent heat c) Calorie d) Joule

[2003, 2001, 1999]

50. The internal energy in an Isothermal process:

- a) Decreases b) Increases c) Become zero d) Remains the same

[2003]

51. If the volume of the system remains constant during a process, it is called:

- a) Isochoric b) Isothermal c) Isobaric d) Adiabatic

[2005, 2002]

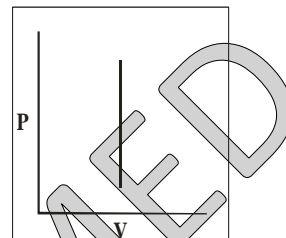
52. The quantity of heat required for per degree rise in temperature of a body is called:

- a) Heat of vaporization b) Heat of fusion c) Specific heat capacity d) Heat capacity

[2002]

53. The P-V diagram shown in the figure is for:

- a) An isothermal change b) An adiabatic change
c) An Isochoric change d) None of these



[2002]

54. The internal energy of a system depends on:

- a) Pressure b) Volume c) Temperature d) Entropy

[2002]

55. The process during which no external work is performed is:

- a) Isothermal b) Isochoric c) Isobaric d) Adiabatic

[1998]

56. A thermo flask contains hot tea, It is shaken rapidly. If the tea is considered as the system, then its temperature will:

- a) Remain same b) Rise c) Fall d) Have its internal energy changed.

57. An amount of heat given to a gas under isothermal conditions will be used for.

- a) A temperature rise b) Doing external work
c) Doing work and for a temperature rise d) Increasing the internal energy of the gas

58. In an adiabatic change the system:

- a) Takes heat from the surroundings b) Gives heat to the surroundings
c) Exchange no heat with the surroundings d) Partly takes heat and partly leaves to the surroundings

59. In an isothermal expansion of gases:

- a) Temperature is lowered b) Temperature is raised
c) Temperature is unaltered d) Temperature becomes zero

60. In which processes the internal energy of a system remain unchanged:

- a) Isochoric b) Adiabatic c) Isothermal d) Isobaric

61. Gases have:

- a) One specific heat b) Two specific heats c) Three specific heats d) No specific heat

62. The quantity of heat required to raise the temperature of 1gm of water from 14.5°C to 15.5°C is known as:

- a) Specific heat b) Latent heat c) Calorie d) Joule

63. Quantity of heat required to raise the temperature of one kg of water from 30°C to 40°C is

- a) 420J b) 4200J c) 42000J d) 420000J

64. Adiabatic process must be carried out suddenly so that:

- a) Effect of friction is minimum b) System may not exchange energy with its surroundings
c) Heat could be supplied to the system without losses d) More work could be done

[2014]

65. In this process no heat enters or leaves the system:

- a) Isochoric b) Isobaric c) adiabatic d) Isothermal

[2009]

66. If no heat flows into or out of a system, the process is called:

- a) Isobaric b) Isothermal c) Isochoric d) Adiabatic

67. The molar heat capacities of polyatomic gases as compared to the monatomic gases are:
a) Greater b) Smaller c) Equal d) Infinite
- [2011]
68. In adiabatic expansion the internal energy of the system
a) Remain the same b) Decreases c) Increases d) Becomes zero
- [2001]
69. Net change in entropy of a system in a natural process is:
a) Zero b) Infinite c) Positive d) Negative
- [2008, 2007]
70. The area bounded by an isothermal and an adiabatic curve in a PV diagram for a heat engine represents:
a) Heat intake b) Heat rejected c) Work done d) Total kinetic energy
- [2006]
71. The efficiency of a Carnot engine is given by:
a) $1 - T_2 / T_1$ b) $T_1 / T_2 - 1$ c) $T_2 / T_1 - 1$ d) None of these
- [2003]
72. The maximum efficiency of a heat engine is obtained by:
a) Increasing the temperature of hot and cold body simultaneously.
b) Decreasing the temperature of sink and increasing the temperature of the source.
c) Decreasing the temperatures simultaneously
- [2015, 1998]
73. If the temperature of the cold is decreased the efficiency of a Carnot engine will.
a) Decreases b) Increase c) Remains constant d) None of these
74. If the temperature of the source is increased, the efficiency of a Carnot engine:
a) Decreases b) Increases
c) Does not change d) Equal to the efficiency of an ideal engine
75. By opening the door of refrigerator which is inside a room
a) Cool the room to a certain degree b) Cool as the temperature of a refrigerator
c) Warm the room slightly d) Neither cool nor warm the room
76. The steam engines A & B have their sources at 900K and 600K and their sinks at 450K and 300K respectively:
a) They are equality efficient b) A is more efficient than B
c) A is less efficient than B d) Their difference cannot be determined
77. The natural direction of the heat flow between two reservoirs depends upon
a) Their temperatures b) Their heat contents
c) Their pressures d) They are in the solid, or gaseous state
78. Efficiency of Carnot engine can be 100% only if temperature of the sink is:
a) 0°C b) 0 K c) 0°F d) None of these
- [2009]
79. According to second law of thermodynamics 100% conversion of heat energy into work is
a) Possible b) Not possible
c) Possible when condition are ideal d) Possible when condition are not ideal
- [2010]
80. Two steam engines A and B have their sources at 600°C and 400°C and their sinks at 300°C and 200°C respectively:
a) They are equally efficient b) A is more efficient than B
c) B is more efficient than A d) If their sinks are interchanged, their efficiencies will not change
- [2008]
81. Entropy has been called the degree of disorder because:
a) The entropy of the universe unchanged b) The entropy of the universe increase
c) The entropy of the universe decreases d) None of these

[2006, 2003]

82. The change in disorder of the system is equal to:

- a) $\Delta S = \Delta T/Q$ b) $\Delta S = \Delta Q/T$ c) $\Delta S = 1 / \Delta Q T$ d) $\Delta S = \Delta Q.T$

[2006]

83. In C.G.S. system one calorie of heat is equal to:

- a) 11.184 J b) 2.184 J c) 3.184 J d) 4.184 J

84. When the temperature of source and sink of a heat engine becomes equal the entropy change will be

- a) Maximum b) Minimum c) Zero d) Negative

85. The entropy change (ΔS) is zero for

- a) Adiabatic process b) Isothermal process c) Isochoric process d) Isobaric process

[2002]

86. The entropy of universe:

- a) Always remains constant b) Always decreases
c) Either remains constant or increase d) Always increases

87. The amount of heat which is absorbed during the change of state from solid to liquid without the rise in temperature is known as:

- a) Specific heat b) Latent heat of fusion
c) Latent heat of vaporization d) Molar specific heat

88. The entropy of universe:

- a) Always remains constant b) Always decreases
c) Either remains constant or increase d) Always increases

89. Entropy is called as "time arrow" because the entropy of the universe

- a) Always increase b) Always decreases
c) Remains constant d) Sometimes increase and sometimes decreases

CH – 11: HEAT

ANSWER KEYS

| | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1) a | 2) b | 3) d | 4) b | 5) b | 6) a | 7) b | 8) a | 9) c | 10) c |
| 11) b | 12) d | 13) b | 14) c | 15) d | 16) c | 17) b | 18) c | 19) a | 20) c |
| 21) c | 22) c | 23) b | 24) b | 25) a | 26) a | 27) d | 28) b | 29) b | 30) d |
| 31) b | 32) b | 33) c | 34) a | 35) c | 36) b | 37) a | 38) b | 39) c | 40) a |
| 41) c | 42) b | 43) c | 44) c | 45) d | 46) d | 47) b | 48) d | 49) c | 50) d |
| 51) a | 52) d | 53) c | 54) c | 55) b | 56) b | 57) b | 58) c | 59) c | 60) c |
| 61) b | 62) a | 63) c | 64) b | 65) c | 66) d | 67) a | 68) b | 69) a | 70) c |
| 71) a | 72) b | 73) b | 74) b | 75) c | 76) a | 77) a | 78) b | 79) b | 80) b |
| 81) b | 82) b | 83) d | 84) c | 85) a | 86) d | 87) b | 88) d | 89) a | |

CH – 12:

ELECTROSTATICS

1. When a glass rod is rubbed with silk the glass rod is positively charge because:
 - a) Electrons are transferred from silk to glass
 - b) Protons are transferred from silk to glass
 - c) Electrons are transferred from glass to silk
 - d) No transfer of electrons or proton has taken place
2. The unit of electric charge is the :
 - a) Electron volt
 - b) Coulomb
 - c) Newton /sq. meter
 - d) None of these

[2005]
3. The minimum electrical charge possible in isolated from is:
 - a) $1.6 \times 10^{-19} \text{ C}$
 - b) $1 \times 10^{-12} \text{ C}$
 - c) $1 \times 10^{-6} \text{ C}$
 - d) One Coulomb
4. Coulomb's law for the force between electric charges most closed resembles.
 - a) The law of conservation of energy
 - b) Newton's second law of motion
 - c) Newton's Law of gravitation
 - d) the law of conservation of mass
5. Two charges q_1 and q_2 are repel each other if
 - a) $q_1 q_2 = 0$
 - b) $q_1 q_2 < 0$
 - c) $q_1 q_2 > 0$
 - d) None

[2011]
6. If an electrostatic force between two electron at a distance is "F" Newton, the electrostatic force between two protons at the same distance is
 - a) Zero
 - b) $F/2$
 - c) F
 - d) $2F$

[2015]
7. If the distance between two pint charges is halved then the electrostatic force between them become
 - a) Halved
 - b) Four times
 - c) Twice
 - d) Remain same

[2008]
8. Two positive point charges repel with a force of $4 \times 10^{-4} \text{ N}$ when placed at distance of 1m. If the distance between them is increased by 2m, the force of repulsion will be :
 - a) $1 \times 10^{-4} \text{ N}$
 - b) $8 \times 10^{-4} \text{ N}$
 - c) $2 \times 10^{-4} \text{ N}$
 - d) $4 \times 10^{-4} \text{ N}$
9. Two unequal point charges repel each other with a force of 100M Dyne when they are 15 inch apart. Find the force which each exertion the other when they are 5 inch apart
 - a) 100MDyne
 - b) 400MDyne
 - c) 900MDyne
 - d) 1000MDyne

[2013]
10. Number of electron contained in one coulomb of charge are:
 - a) $6.25 \times 10^{18} \text{ e}$
 - b) $2 \times 10^{19} \text{ e}$
 - c) $2 \times 10^{19} \text{ e}$
 - d) $9 \times 10^{18} \text{ e}$

[2006]
11. The concept of the electric lines of force was introduced by a famous scientist called:
 - a) Newton
 - b) Einstein
 - c) Coulomb
 - d) Faraday
12. The direction of the electric field intensity is:
 - a) Away from all negative charges
 - b) Toward all negative charges
 - c) Same as direction of an electric force
 - d) Dependent on the nature of a charge

[2007,2002]
13. Which of the following cannot be the unit of electric intensity:
 - a) N/ Coulomb
 - b) Volt/ meter
 - c) Joule/ Cm
 - d) Joule/Coulomb

[2014, 2007, 2010]

14. Which of the following is not a scalar quantity?
a) Potential b) Electromotive force c) Electric flux d) Electric intensity
15. Two point charges each of $10 \mu\text{C}$ are placed 10cm apart in air, what is the electric field intensity at the mid point on the line joining the two like charges of same magnitude is
a) $9 \times 10^9 \text{ N}$ b) 1 c) Zero d) None

[2002]

16. The force per unit charge is known as:
a) Electric flux b) Electric field intensity c) Electric potential d) Electric current
17. The magnitude of the electric field intensive does not depend upon:
a) the distance from charged particle b) the nature of medium
c) the magnitude of the charge d) the nature of charge

[2011]

18. The quantity - $\Delta V/\Delta r$ represents:
a) Gauss's law b) Electric flux c) Potential difference d) Electric intensity

[2002]

19. The electric flux through a surface will be minimum, when the angle between E and ΔA is:
a) 90° b) Zero c) 45° d) 60°
20. The flux through a surface is maximum when the angle between E and ΔA is:
a) 0° b) 90° c) 180° d) 45°

[2008]

21. Electric flux through the surface of a sphere which contains a charge at its centre depends :
a) The radius of the sphere b) The surface area of the sphere
c) The amount of charge inside the sphere d) The amount of charge outside the

[2001]

22. The electric flux through a closed surface depends on the:
a) Magnitude of the charge enclosed by the surface b) Position of the charge enclosed by the surface
c) The shape of the surface d) None of the above option
23. The flux through a closed surface which does not contain any charge is:
a) Infinite b) Positive c) Zero d) Unity
24. If a closed surface contains two equal and opposite charges, the net electric flux from the surface will be:
a) 2σ b) $1/2\sigma$ c) $2q/\sigma$ d) Zero
25. Coulomb per square meter is a unit of:
a) Permittivity constant of a medium b) Dipole moment
c) Surface density of charge d) Linear density of charge

[2004]

26. The magnitude of Electric Intensity between two oppositely charged plates is:
a) $\frac{2\sigma}{\epsilon_0}$ b) $\frac{\sigma}{2\epsilon_0}$ c) $\frac{\sigma}{3\epsilon_0}$ d) $\frac{\sigma}{\epsilon_0}$

[2012,2005,2002]

27. The electric field intensity between two similarly charged plate is:

- a) σ/ϵ_0 b) $\sigma/2\epsilon_0$ c) Zero d) $2\sigma/\epsilon_0$

28. Electric intensity at a point inside a charged hollow sphere is:

- a) Zero b) Infinite c) Positive d) Negative

[2014,2012, 2004, 2002]

29. One joule per coulomb is called:

- a) Farad b) Gauss c) Ampere d) Volt

[2006]

30. The quantity $\Delta V/\Delta S$ is called:

- a) Electric Potential b) Electric field intensity c) Potential gradient d) Electric induction

[2005, 2003]

31. The change in potential energy of a unit charge between two points in an electrical field is called:

- a) Intensity b) Permittivity c) Potential difference d) Flux

32. The relation between electric field intensity 'E' and electric potential 'V' is:

- a) $E = V r$ b) $V = E r$ c) $r = E V$ d) $E V = 1/r$

33. The earth surface is assumed to be at:

- a) Infinite potential b) Zero potential c) Negative potential d) None

34. For a capacitor, the charge per unit volt is called:

- a) Potential b) Electric flux c) Capacitance d) Current

35. The capacitance of parallel plate capacitor doesn't depend upon:

- a) Area of plates b) Distance b/w the plates
c) Medium b/w the plates d) Nature of metals used as plates

[2012]

36. If the area of the plates of a parallel plates capacitor is doubled, the capacitance:

- a) is half b) remains unchanged c) is increased four times d) is double

37. The separation between the plates of a parallel palate capacitor whose original capacitance was C is doubled, the capacitance is now:

- a) $\frac{1}{4} C$ b) $\frac{1}{2} C$ c) $2 C$ d) $4 C$

[2002,2003]

38. With the introduction of a dielectric between the plates of a capacitor, its capacitance:

- a) Increases b) Decreases c) Remains the same d) Becomes zero

[2008]

39. The introduction of a dielectric between the oppositely charged plates causes the intensity:

- a) To increase b) To decrease
c) To remain constant d) To increase and decrease

[1989]

40. Slab of certain dielectric is placed between two oppositely charge metal plates. Choose the correct answer from the following?

- a) Intensity of electric filed b/w plates increases. b) Intensity of electric filed b/w plates decreases.
c) Intensity of electric filed b/w plates doesn't change. d) None of these

[2003]

41. If a dielectric slab is introduced between the plates of a parallel plate capacitor, kept at a constant potentials, the charge on the capacitor:

- a) Decreases b) Increases c) Remains unchanged d) Becomes zero

42. Dielectric constant for air is:

- a) 1.0 b) 1.05 c) 0.8 d) Infinite

[2005]

43. A dielectric $k = 2$ is inserted between the plates of a $20\mu\text{F}$ capacitor. Its capacitance will become:
 a) $10\mu\text{F}$ b) $18\mu\text{F}$ c) $22\mu\text{F}$ d) $40\mu\text{F}$

[2003]

44. If two capacitors of $5\mu\text{F}$ and $7\mu\text{F}$ are connected in parallel, their equivalent capacitance will be:
 a) $0.12\mu\text{F}$ b) $12\mu\text{F}$ c) $0.34\mu\text{F}$ d) $2.9\mu\text{F}$

45. When two identical capacitor are connected in parallel the net capacitance will be:

a) Doubled b) Unchanged c) Halved d) Zero

[2006, 2002, 2010]

46. If $4\mu\text{F}$ and $2\mu\text{F}$ capacitors are connected in series, the equivalent capacitance is:

a) $0.76\mu\text{F}$ b) $6\mu\text{F}$ c) $2\mu\text{F}$ d) $1.33\mu\text{F}$

[2014]

47. Two capacitors of $3\mu\text{F}$ and $6\mu\text{F}$ are connected in series. Their equivalent capacitance is:

a) $19\mu\text{F}$ b) $2\mu\text{F}$ c) $\frac{1}{2}\mu\text{F}$ d) $3\mu\text{F}$

48. When three capacitors are joined in series, the total capacitance is:

a) Less than the value of minimum capacitance b) Equal to the sum of the capacitances
 c) Greater than the value of maximum capacitance d) None of these

49. Which of the following is a representation of electrostatic potential energy of a capacitor?

a) $\frac{1}{2} CV^2$ b) $\frac{1}{2} C^2V$ c) CV d) $\frac{1}{2} (CV)^2$

CH – 12: ELECTROSTATICS

ANSWER KEYS

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
| 11) | 12) | 13) | 14) | 15) | 16) | 17) | 18) | 19) | 20) |
| 21) | 22) | 23) | 24) | 25) | 26) | 27) | 28) | 29) | 30) |
| 31) | 32) | 33) | 34) | 35) | 36) | 37) | 38) | 39) | 40) |
| 41) | 42) | 43) | 44) | 45) | 46) | 47) | 48) | 49) | |

Chapter - 13:

CURRENT ELECTRICITY

[2006]

1. The rate of transfer of charges through a circuit is called.
 - a) Resistance
 - b) Current
 - c) Potential difference
 - d) all of these
2. Electrical conductor contains.
 - a) Only free electrons
 - b) Only bound electrons
 - c) Resistance
 - d) All of these.
3. Charge carrier in Metallic conductors are the electron of:
 - a) Valence Shells
 - b) All shells
 - c) Excited States
 - d) Inner shells
4. The current which flows from high potential to low potential is called:
 - a) Pulsating current
 - b) Direct current
 - c) Alternating current
 - d) Conventional current
5. Free electrons in an electric field:
 - a) Move from higher potential to lower potential
 - b) Remain stationary
 - c) Move from lower potential to higher potential
 - d) Rotate in a circle

[2009]

6. In the relation $I = KV$, K stands for:
 - a) Conductance
 - b) Resistivity
 - c) Specific Resistance
 - d) Permeability
7. Ohm's Law is applicable only for:
 - a) Electrolytes
 - b) Metallic conductors
 - c) Semi conductors
 - d) All of these
8. A wire of length L and resistance R is cut into four equal pieces. Resistance of each piece would be:
 - a) R
 - b) $R/2$
 - c) $2R$
 - d) $R/4$

[2007]

9. If a wire of a uniform area of cross section is cut into two equal parts, the resistivity of each part would be:
 - a) Doubled
 - b) Halved
 - c) Same
 - d) None of these

[2011]

10. A copper wire having resistivity ρ is stretched in such a way that its diameter reduces to half of that of the original wire. The new resistivity will be:
 - a) halved
 - b) doubled
 - c) the same
 - d) four-fold

[2013, 2008]

11. A wire of a uniform cross-section area is cut into three equal segments. The resistivity ' ρ ' of each segment
 - a) $1/3 \rho$
 - b) Remains same
 - c) $2/3 \rho$
 - d) Three times

[2014]

12. Resistance of a wire does not depend on the:
 - a) Area
 - b) Temperature
 - c) Length
 - d) Electric current

[2006]

13. The power dissipated by a resistance is given by.
 - a) $P = VR$
 - b) $P = V^2/R$
 - c) $P = IR^2$
 - d) None of these

[2005]

14. The power dissipated in a resistance is given by.
 - a) IV
 - b) I^2R
 - c) V^2/R
 - d) All of these

[2007]

15. A resistor carries a current I. The power dissipated is P. the power dissipated of same resistor carries the current 3I is:
 - a) 9 P
 - b) $P/3$
 - c) 3 P
 - d) P
16. Power dissipated in two series resistors is directly proportional to their.
 - a) Resistances
 - b) Current
 - c) Potential differences
 - d) All of these.

[2009, 2010]

17. The electrical energy dissipated as heat in a resistor is given by

- a) $I^2 R$ b) $I^2 R t$ c) $V^2 R$ d) $V^2 R t$

[2011]

18. Two wires of resistance R_1 and R_2 are connected in a series in a circuit. If R_1 is greater than R_2 , the heating would be:

- a) More in R_1 b) More in R_2 c) Same in R_1 and R_2 d) All of these

[2005, 2002, 2010]

19. The commercial unit of electrical energy is called:

- (a) Joule (b) Kilowatt (c) Kilowatt hour (d) Megawatt

[2012, 07, 2003]

20. $1 \text{ KWh} = \underline{\hspace{2cm}}$

- (a) $3.6 \times 10^3 \text{ J}$ (b) $3.6 \times 10^6 \text{ J}$ (c) $3.6 \times 10^9 \text{ J}$ (d) $3.6 \times 10^{12} \text{ J}$

[2002]

21. Kilowatt hour is the unit of:

- (a) Power (b) conductivity (c) Potential difference (d) Energy

22. The source which maintains the steady current in electrical circuits is called:

- (a) Electric motor (b) E.M.F (c) Generator (d) Thermocouple

23. The e.m.f of a source in the presence of internal resistance is:

- (a) IR (b) Ir (c) $IR + Ir$ (d) $IR - Ir$

24. E.M.F. of a source in the absence of internal resistance is:

- (a) IR (b) $IR + Ir$ (c) Ir (d) $IR - Ir$

25. Loss of Voltage in Electrical circuits is given by:

- (a) IR (b) Ir (c) $IR + Ir$ (d) $IR - Ir$

[2001]

26. The terminal potential difference of a battery is equal to its e.m.f when its internal resistance is:

- (a) Zero (b) Very high (c) Very low (d) None of these

[2015]

27. A battery of e.m.f (E) has an internal resistance (r). If a current (I) is drawn from it, then its terminal potential drop is

- (a) $V = E - Ir$ (b) $V = E + Ir$ (c) $V = IR$ (d) $V = Er$

[2001, 2008]

28. In a house circuit all the electrical appliances are connected in parallel with the phase and the neutral to get:

- a) Same current & different potential difference b) Different currents but the same potential difference
c) Same current & same potential difference d) Different currents and different potential differences

[2008]

29. The resistances of 2Ω , 5Ω , 7Ω and 9Ω are connected in parallel. If the potential difference across the 5Ω resistance is 5 V , the potential difference across 9Ω resistance will be:

- a) 9 V b) 5 V c) 2.5 V d) 1.5 V

[2004]

30. The resistors of 3Ω , 5Ω and 7Ω are connected in parallel if 0.3 V be the p.d. between the ends of 3Ω resistor, the potential difference across the other resistors is:

- (a) 0.5 V (b) 0.7 V (c) 1.2 V (d) 0.3 V

[2013]

31. Resistors of 3Ω , 5Ω and 7Ω are connected in parallel. If the P.D. across 5Ω resistor is 6 volt , the P.D. across the other resistors is:

- (a) 4 Volts (b) 6 volts (c) 8 volts (d) 10 volts

32. How three parallel resistors each of resistance 3Ω could be connected with a 2Ω resistor to have net resistance of 3Ω :

- (a) In series (b) In parallel (c) In complex network (d) Not in any way

[2008]

33. A piece of wire of length 'L' and an area of cross-section 'A' has a resistance 'R'. Another piece of wire of the same material and the same length but twice the area of cross-section is connected end-to-end with the previous wire. The effective resistance is:

a) R b) 2R c) $\frac{1}{3} R$ d) $\frac{1}{2} R$

[2003]

34. Total potential difference across the combination of three cells becomes maximum when

(a) They are connected in parallel (b) They are connected in series.
(c) Two cells connected in parallel and one in series (d) Two cells are connected in series and one in parallel.

[2009]

35. The E.M.F. of three cell, each of 2 volts in parallel will be:

a) 6 V b) 8 V c) 2 V d) Zero V

[2012]

36. Resistance of 2 ohm, 3 ohm, 4 ohm and 5 ohm are connected in series. If the current flowing through 2 ohm resistor is one amp, the current through the other resistors will be

a) 4 ampere b) 1 ampere c) 14 ampere d) 0.1 ampere

[2015]

37. Resistors of $5\ \Omega$ and $10\ \Omega$ are connected in parallel. If the P.D across $5\ \Omega$ resistor is 6 volts, the P.D across $10\ \Omega$ resistor will be:

(a) 3 Volts (b) 6 volts (c) 9 volts (d) 12 volts

CH – 13: CURRENT ELECTRICITY**ANSWER KEYS**

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
| 11) | 12) | 13) | 14) | 15) | 16) | 17) | 18) | 19) | 20) |
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| 31) | 32) | 33) | 34) | 35) | 36) | 37) | | | |

Chapter - 14:

ELECTROMAGNETISM

[2006]

1. Which is not a magnetic material?
 a) Iron b) Nickel c) Cobalt d) Silver
2. Maximum force on a charged particle moving in magnetic field is given by:
 a) $q v B$ b) $q v B \sin \theta$ c) $B l$ d) $B l \sin \theta$

[2003]

3. The force acting on a charged particle projected into a magnetic.
 a) 0° b) 90° c) 60° d) 45°

[2008]

4. A charged particle moving in the magnetic field B experience a resultant force:
 a) Proportional to the kinetic energy b) In the direction of the field
 c) In the direction perpendicular to motion and field. d) None of these

[2015]

5. When an electron moves in a magnetic field (B) with a velocity (V), the magnetic force acting on it is perpendicular to:
 a) V but not on B b) B but not on V c) Neither V nor B d) Both V and B

[2002]

6. If a straight conductor of length " l " carrying a current " I " is placed parallel to a magnetic field " B ", the force experienced by the conductor is:
 a) $B l I$ b) $B l I \cos \theta$ c) Zero d) Infinite

[2005]

7. The force per unit length of a current- carrying conductor in a uniform magnetic field is given by:
 a) $I B l \sin \theta$ b) $I B l \cos \theta$ c) $I B \sin \theta$ d) $I B \cos \theta$

[2001]

8. The maximum magnetic force will act on a current carrying conductor in a magnetic field when it is placed.
 a) At 60° to the field b) At 45° to the field. c) Parallel to the field d) Perpendicular to the field

[2006]

9. The S.I Unit of magnetic flux is:
 a) Tesla b) Weber c) Gauss d) Ohm

[2003]

10. One Tesla is equal to:
 a) 1 weber/ metre² b) 2 weber/ metre c) weber² / metre² d) Newton/ ampere

[2009]

11. Which one is not a unit of magnetic flux density?
 a) $N A^{-1} m^{-1}$ b) Wb / m^2 c) Tesla d) $V A^{-1} S$

[2004]

12. The unit of B , is:
 a) $\frac{\text{newton}}{\text{Coulomb} \times \text{metre}}$ b) $\frac{\text{newton}}{\text{ampere} \times \text{metre}}$ c) $\frac{\text{ampere}}{\text{newton} \times \text{metre}}$ d) $\frac{\text{ampere} \times \text{metre}}{\text{newton}}$

[2002]

13. The deflecting torque on a current carrying coil placed in a magnetic field is maximum when the angle between the magnetic field and the plane of the coil is:
 a) 90° b) 60° c) 45° d) Zero

14. Which of the following is not the unit of magnetic induction?
 a) Weber b) Tesla c) $N / A m$ d) Weber / m²

[2014, 2006, 2005]

15. The path of neutron moving normal to the magnetic field is:
 (a) A straight path (b) A circular path (c) An oval path (d) A sinusoidal path

[2002]

16. When a charged particle enters a uniform magnetic field perpendicularly, its path is
(a) Spiral (b) Circular (c) Parabolic (d) Straight line

[2002]

17. If an electron and a proton enter into a magnetic field perpendicularly with the same momentum
(a) The electron will be deflected more (b) The proton will be deflected more.
(c) They will not be deflected at all. (d) Both particles will be deflected equally

18. Which of the two charged particles of same masses will deflect more in the same magnetic field:
(a) Slow moving (b) Fast moving (c) Both (d) None of these

[2012, 2002]

19. A steady current passing through a conductor produces
(a) Electric field only (b) Magnetic field only (c) Both a & b (d) None of these

20. Upon which of the following magnetic field inside the solenoid does not depend.
(a) Permeability (b) Current (c) Turns per length (d) Diameter of solenoid

21. Net electric field in a current carrying conductor is:
(a) The difference of electric fields of protons and electron. (b) Zero
(c) The sum of electric fields of protons and electrons (d) Negative

22. The magnetic field of induction within the core of toroid for the given value of current
(a) Directly proportional to the square of the radius of turns. (b) Directly proportional to the radius of turns.
(c) Inversely proportional to the number of turns (d) Directly proportional to number of turns.

[2011]

23. Two free parallel wires carrying current in the opposite direction:
a) Do not affect each other b) Attract each other
c) Repel each other d) None of these

24. [2003 (P.M)]

- When the north pole of a bar magnet approaches the face of a closed coil the face becomes;
(a) South pole (b) North and then south pole (c) North pole (d) No effect is observed.

25. [2013, 2005]

- The direction of induced current is given by:
(a) Ampere's Law (b) Faraday's Law (c) Lenz's Law (d) Snell's Law

26. [2005]

- The maximum resistance in an A.C. circuit is offered by:
(a) Capacitor (b) Solenoid (c) Electromagnet (d) Electric bulb

27. The Current produced by moving the loop of wire across the magnetic field is called:
(a) Direct current (b) Steady current (c) Pulsating current (d) Induced current

28. Non-Inductive wiring is used to minimize:
(a) Conductance (b) Resistance (c) Mutual Inductance (d) Self Inductance

29. Henry is equivalent to:
(a) Weber / Ampere (b) Weber / m² (c) Weber/ ampere meter (d) Weber x meter

[2005]

30. S.I. Unit of induction is
(a) Tesla (b) Henry (c) Watt (d) Weber

31. Weber per ampere is known as:
(a) Mutual inductance (b) Self inductance (c) Induced e.m.f. (d) A & B are correct

32. The phenomenon of producing emf in the coil itself due to varying current is called:
a) Mutual Induction (b) Self Induction (c) Motional e.m.f. (d) Electromagnetic induction

33. Which of the following law is satisfied by the Lenz's law:
(a) Law of conservation of energy (b) Law of conservation of charge
(c) Faraday Law of induction (d) None of these
34. The current which flows in the coil to oppose the dragging force on the coil is called:
(a) Direct current (b) Pulsating current (c) Induced current (d) Steady current.
35. When the coil is moved towards the magnetic poles then:
(a) Light will appear (b) Heat will produce (c) No effect. (d) emf will induce in the coil.
36. Cause of self inductance is:
(a) Change in current in the same coil (b) Change in flux in the same coil.
(c) Both A and B are wrong (d) Both A and B are correct.
- [2015, 2011]
37. If the number of turns in a coil is doubled, its self inductance will be:
a) Doubled b) Halved c) The same d) Four-fold
- [2003]
38. A transformer is used to change:
(a) Capacitance (b) Frequency (c) Voltage (d) Power
- [2010]
39. Transformers are used in circuits containing
a) d.c.alone b) a.c.alone c) both a.c. and d.c. d) non-inductive winding
- [2002]
40. Transformer works on
(a) Ohm's Law (b) Self induction (c) Mutual Induction (d) Gauss's Law
- [2008]
41. In a conventional transformer:
a) The current moves from primary to the secondary windings without any change
b) EMF is induced in the secondary by the changing magnetic flux.
c) The heat is transferred from primary to secondary d) None of the above
42. The core of a transformer is made of soft iron because:
(a) Iron is cheaper than copper (b) Iron is a good magnetic substance
(c) Iron is a good conductor of current (d) Iron has high melting point.
43. The core of transformer is used to link the primary coil to the secondary coil. What type of link is this?
(a) Thermal, (b) Electrostatic (c) Magnetic (d) Mechanical.
- [2013, 2012, 2009]
44. The practical application of the phenomenon of mutual inductance is:
a) A.C. generator b) Transformer c) Rectifier d) Dynamo
- [2003]
45. In step down transformer:
(a) $N_s > N_p$ (b) $N_s < N_p$ (c) $N_s = N_p$ (d) $N_s = N_p$
46. In step up transformer:
(a) $I_s > I_p$ (b) $I_s < I_p$ (c) $I_s = I_p$ (d) All of these
47. Due to change of magnetization some heat is produced in the coils of transformer when alternating current is supplied at its input. This process is called:
(a) Drifting (b) Rectification (c) Hysteresis (d) Induction
- [2011]
48. The core of a transformer is laminated to reduce the loss of Energy caused by:
a) $NA\phi$ [Flux leakage] b) Eddy current c) Heating d) All of these

49. If “v” is the speed of a conductor of length “L” moving perpendicularly across the magnetic field B then the motional e.m.f is given by:

- (a) vBL (b) v/LB (c) vB/L (d) BL/v

[2010]

50. The motional e.m.f induced in a coil is independent of:

- a) Change of flux b) Number of turns c) Time d) Resistance

[2014,2013,2009]

51. A.C. Generator is converted into D.C generator by replacing :

- a) Rectangular coil from circular coil b) Commutator from slip rings (Split ring)
c) Armature from solenoid d) None of these

52. A.C. generator works on the principle of:

- (a) Self induction (b) Mutual induction (c) Motional emf (d) A & B is correct.

53. In D.C generator which of the following is not present

- (a) Armature (b) Commutators (c) Magnets (d) Slip rings

54. The current which fluctuates from zero to maximum and maximum to zero is called:

- (a) D.C (b) A.C. (c) Steady current (d) Pulsating D.C

55. In electric motor commutator is used for:

- (a) Pulsating D.C (b) Increasing the current (c) Steady current (d) A.C.

[2007]

56. A Device which converts the electrical energy to mechanical energy connecting to it:

- a) Transformer b) Capacitor c) Galvanometer d) Electric motor

CH – 14: ELECTROMAGNETISM

ANSWER KEYS

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
| 11) | 12) | 13) | 14) | 15) | 16) | 17) | 18) | 19) | 20) |
| 21) | 22) | 23) | 24) | 25) | 26) | 27) | 28) | 29) | 30) |
| 31) | 32) | 33) | 34) | 35) | 36) | 37) | 38) | 39) | 40) |
| 41) | 42) | 43) | 44) | 45) | 46) | 47) | 48) | 49) | 50) |
| 51) | 52) | 53) | 54) | 55) | 56) | | | | |

CHAPTER – 15:

MEASURING DEVICES

[2007,2003,2002,2001]

1. A moving coil galvanometer is converted into an ammeter by connecting to it:
 (a) Low resistance in series (b) High resistances in series
 (c) High resistance in parallel (d) Low resistance in parallel

[2008]

2. The sensitivity of a galvanometer can be increased by increasing:
 (a) Magnetic field (b) Area of coil (c) Number of turns (d) All of them:

[2006]

3. $I = C / B N A \theta$ to increase the sensitivity of a galvanometer, we must decrease the value of:
 (a) θ (b) N (c) B (d) C

4. Sensitivity of Galvanometer is given by:

(a) $CBAN$ (b) $1 / CBAN$ (c) C / BAN (d) BAN / C

5. The process of reducing amplitude of vibration of coil of galvanometer is called:

(a) Drifting (b) Shunting (c) Doping (d) Damping

6. In a circuit voltmeter is always connected in:

(a) Series (b) Parallel (c) Both A and B (d) None of these

[2014]

7. This is a high resistance instrument:

a) Voltmeter b) Ammeter c) Galvanometer d) Motor

[2012, 2002]

8. AVO meter is used measure.

(a) Current (b) Voltage (c) Resistance (d) All of them

[2010]

9. Single device containing ammeter, voltmeter and ohmmeter is called:

a) VTVM b) CRO c) Potentiometer d) Multimeter

[2003]

10. To increase the accuracy of potentiometer:

(a) A uniform wire of a large length should be used. (b) A non-uniform wire should be used.
 (c) A uniform wire of a small length should be used (d) None of these

11. Which of the following device is not used for measuring resistance.

(a) P.O. Box (b) Ohmmeter (c) Potentiometer (d) Meter bridge

[2003]

12. Potentiometer is a device for measuring.

(a) P.D b/w two points (b) E.M.F (c) Voltage b/w two points. (d) All the above

[2015]

13. An instrument which can measure and compare potentials without drawing any current from the circuit is

(a) Potentiometer (b) Ohm meter (c) Voltmeter (d) Meter bridge

[2011]

14. If the length of the wire of potentiometer is increased, the accuracy in the determination of null point:

a) Increases (b) Decreases (c) Remains the same (d) Becomes zero

[2002]

15. A Meter Bridge is used to measure.

(a) Voltage (b) Inductance (c) Capacitance (d) Resistance

16. The device which make use of Wheatstone bridge is:

(a) Ohm meter (b) Meter bridge (c) Voltmeter (d) Potentiometer

17. P.O. Box is used to find:

(a) Current (b) emf (c) Resistance (d) All of these

18. Balanced position of Wheatstone bridge is obtained when potential at the terminals of Galvanometer is.

(a) Zero (b) Different (c) Same (d) None of these

[2006]

19. In a Wheatstone bridge circuit we balance:

(a) Resistance

(b) Current

(c) Voltage

(d) All of these

[2003]

20. The principle of post office box is based on:

(a) Telegraph line

(b) Multi-meter

(c) Potential difference (d) Wheatstone bridge

CH – 15: MEASURING DEVICES**ANSWER KEYS**

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
| 11) | 12) | 13) | 14) | 15) | 16) | 17) | 18) | 19) | 20) |

SIR DANISH AHMED

CHAPTER – 16: ELECTROMAGNETIC WAVES & ELECTRONICS

[2007, 2003]

1. In P type semi conductors the majority of the charge carriers are:
 (a) Electrons (b) Protons (c) Neutrons (d) Holes

[2014]

2. Hole in a semi conductor is actually the:
 a) Electron b) Positron c) helium nucleus d) vacancy in the valence bond

[2007, 2006, 2005, 2003, 2002]

3. A semi-conductor Diode is used as:
 (a) An amplifier (b) An oscillator (c) A rectifier (d) None of these

[2003, 2001]

4. The elements of group IV, like Ge and Si can be converted to p-type semi conductors by:
 (a) Adding impurity of group V elements (b) Adding impurity of group III elements
 (c) Adding impurity of group V and III elements (d) None of these.

[2002, 2010]

5. The forbidden energy gap between the valence band and the conduction band in semi conductor is:
 (a) Fairly large (b) Relatively narrow (c) Zero (d) Infinite

[2002]

The speed of electromagnetic waves depends on:

- (a) Permeability only (b) Permittivity only (c) Both on A and B (d) None of them

[2007, 2003]

7. The speed of the electromagnetic waves is given as:

- (a) $\sqrt{\mu_o \epsilon_o}$ (b) $\mu_o / \sqrt{\epsilon_o}$ (c) $\sqrt{\mu_o / \epsilon_o}$ (d) $1 / \sqrt{\mu_o \epsilon_o}$

8. The three terminal devices, used as an amplifier is called.

- (a) Diode (b) Transistor (c) Triode (d) P-type

9. The process of generating the effect of Audio signal in electromagnetic wave is called:

- (a) Modulation (b) Amplification (c) Biasing (d) Rectification

10. The process of adding impurity of trivalent or pentavalent into semi conductor is called:

- (a) Modulation (b) Rectification (c) Doping (d) Biasing

11. The semi conductor mixed with impurity of trivalent or pentavalent is called:

- (a) Electronic device (b) Extrinsic semi conductor
 (c) Intrinsic semi conductor (d) None of these

12. The semi conductor device which increases the strength of weak input signal at the output is a:

- (a) N-type semi conductor (b) P-N diode
 (c) Transistor (d) P-type semi conductor

13. The process in which original signal is recovered , from modulated signal is called:

- (a) Doping (b) Biasing (c) Rectification (d) Demodulation

14. In frequency modulation, which one of the following of the original signal does not change:

- (a) Pitch (b) Wave length (c) Frequency (d) Amplitude

[2008]

15. The potential difference applied across p-n junction which results in the reduction of the barrier potential is:

- (a) Reverse biasing (b) Forward biasing (c) Charging (d) induction

[2008]

- 16.** In a semiconductor:
- (a) The electrons move in the conduction band while the holes move in the forbidden band.
 - (b) The holes move in the conduction band and the electrons move in the forbidden band.
 - (c) The electrons move in the conduction band and the holes move in the valence band.
 - (d) The holes move in the conduction band and the electrons move in the valence band only.

[2012, 2002]

- 17.** With the increase of temperature the resistance of a semi conductor.
- (a) Increases
 - (b) Decreases
 - (c) Remain constant
 - (d) all of these

[2002]

- 18.** The temperature coefficient of resistance of a semi conductor is :
- (a) Positive
 - (b) Negative
 - (c) Zero
 - (d) None of these

[2015]

- 19.** Donor impurities are:
- a) Ge and Si
 - b) In and Ga
 - c) Sb and As
 - d) Li and Ga

[2011]

- 20.** Pn-Junction Diode works as an insulator if connected:
- a) to A.C. source
 - b) in forward bias
 - c) in reverse bias
 - d) all of these

[2011]

- 21.** A photoelectric cell transforms light energy into:
- a) Heat energy
 - b) Magnetic energy
 - c) Electrical energy
 - d) Sound energy

[2011]

- 22.** Emitter Base junction is forward biased in:
- a) PNP transistor
 - b) NPN transistor
 - c) Both a & b
 - d) Rectifier

CH – 16: ELECTRONICS

ANSWER KEYS

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
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CHAPTER – 17:

ADVENT OF MODERN PHYSICS

1. Galilean transformations are applicable to a frame of reference which is:
 - (a) Stationary
 - (b) Moving
 - (c) Inertial
 - (d) Non-Inertial
 2. According to the special theory of relativity space and time have:
 - (a) Absolute meaning
 - (b) Relative meaning
 - (c) Selective meaning
 - (d) None of these
 3. According to Einstein when the velocity of a particle continuously increase, the mass of the particle.
 - (a) Increases
 - (b) Decreases
 - (c) Remain same
 - (d) None of these
 4. This is not the result of special theory of relativity.
 - (a) Space-time transformation.
 - (b) Relative mass
 - (c) Length contraction
 - (d) Time dilation
 5. 'c' is the velocity of light in free space. Then mass of a particle becomes double in a frame of reference moving with relative velocity:
 - (a) $2c$
 - (b) $4c$
 - (c) $0.866c$
 - (d) $0.95c$
 6. According to Special Theory of relativity, length of a rod when viewed from a moving frame of reference is.
 - (a) Decreases
 - (b) Increases
 - (c) Remains same
 - (d) Zero
 7. The theory of relativity propounded by Einstein, in 1905, is called the special theory because:
 - (a) It is confined to inertial frames only
 - (b) It has some special feature
 - (c) It deals with a special branch of physics
 - (d) None of above
 8. The special theory of relativity shows that Newtonian mechanics is
 - (a) Correct only for v less than c
 - (b) Totally incorrect
 - (c) Correct for all velocities
 - (d) Approximately correct for velocity much smaller than c
 9. Which one of the following changes with relativistic speed
 - (a) Mass, velocity, time
 - (b) Mass, time, length
 - (c) Length, time, velocity
 - (d) None of these
 10. Energy liberated due to complete breaking of 1kg of meter is:
 - (a) 3×10^8
 - (b) 9×10^{16}
 - (c) 9×10^8
 - (d) 3×10^{16}
- [2013]
11. Rest mass of photon is:
 - (a) 9.11×10^{-31} Kg
 - (b) 1.67×10^{-27} Kg
 - (c) Zero
 - (d) None of these
 12. Special theory of relativity deals with:
 - (a) Objects moving with accelerated speed
 - (b) Objects moving with constant speed
 - (c) Objects at rest.
 - (d) Both b and c.
 13. According to the special theory of relativity, the energy of an object depends upon:
 - (a) Its mass only
 - (b) Momentum and position
 - (c) Velocity and time
 - (d) Mass and velocity
 14. Which one of the following is correct for the inertial frame of reference?
 - (a) It is in uniform motion
 - (b) It has zero acceleration
 - (c) Net force acting on it is zero
 - (d) All of these
 15. Non inertial frame has?
 - (a) Constant velocity
 - (b) Zero acceleration
 - (c) Acceleration
 - (d) None of these
 16. The theory relativity shows that Newtonian mechanic is:
 - (a) Wholly valid
 - (b) Valid only to velocities up to the velocity of light
 - (c) Approximately valid for all velocities
 - (d) Approximately valid for small velocities also
 17. A perfect black body:
 - (a) Is a perfect absorber of radiation
 - (b) Has a unit absorptive power
 - (c) Is the most efficient radiator
 - (d) Radioactive Emission

18. The expression $\lambda_{\max} \times T = \text{constant}$, represents:
 (a) Stefan's Law (b) Wein's Displacement Law
 (c) Rayleigh- Jean's Formula (d) Planck's Law
- [2010]
19. The rate of energy radiation from black body (emissive power) is proportional to its absolute temperature raised to power:
 (a) 4 (b) 3 (c) 2 (d) 1
20. According to Wien's displacement law thermal wavelength is inversely proportional to the:
 (a) Frequency (b) Velocity (c) Temperature (d) Heat
- [2013, 2011]
21. In black body radiation curve with increase in temperature, wave length corresponding to maximum intensity:
 (a) longer wavelength (b) Shorter wavelength
 (c) similar wavelength (d) lower frequency
22. The energy E given out in the form of quanta of energy in the black body radiation is given as:
 (a) $h \lambda / c$ (b) $\lambda c / h$ (c) $h / \lambda c$ (d) $h c / \lambda$
23. Black Body radiations are:
 (a) Infra red and visible light (b) All radiations
 (c) Visible light and ultra violet (d) Ultraviolet and X-rays
24. Wein's displacement law is:
 (a) $\lambda_{\max} T = \text{constant}$ (b) $\lambda_{\max} / T = \text{constant}$
 (c) $\lambda_{\min} / T = \text{constant}$ (d) $\lambda_{\min} T = \text{constant}$
25. Black body rations are also called:
 (a) Temperature radiations (b) High energy radiations
 (c) Communication radiations (d) Coherent radiations
26. According to Planck's theory energy radiate from the black body in the form of:
 (a) Photon (b) Packers (c) Quantum (d) All of the above
27. Existence of photon was confirmed by:
 (a) Compton (b) De' Broglie's (c) Einstein (d) Max Plank
28. Energy of photon is directly proportional to its:
 (a) Temperature (b) Frequency (c) Wave length (d) None of these.
29. Which of the following travel at the speed of light:
 (a) Alpha rays (b) Beta rays (c) Electrons (d) Photons
30. The strength of the photoelectric current depends on:
 (a) Frequency of incident radiation (b) Angle of incidence
 (c) Intensity of incident radiation (d) Distance between anode and cathode
31. In photoelectric emission the kinetic energy of the photoelectron is:
 (a) Directly proportional to wave length of radiations (b) Directly proportional to frequency of radiations
 (c) Directly proportional to intensity of incident radiations (d) Does not depend on any of the above factors
32. The study of photoelectric effect is useful for under standing:
 (a) The quantum nature of light (b) Bohr's atomic model
 (c) Compton effect (d) the nature of electron
33. The phenomenon of photoelectric effect demonstrate that nature of light is:
 (a) Wave (b) Particle (c) Longitudinal (d) Transverse

34. Increasing the intensity of the source of light the number of photo-electrons:
 (a) Increases (b) Decreases (c) Remains the same (d) Becomes finite
35. Minimum amount of energy required to eject the photo electron is:
 (a) Threshold frequency (b) Work function
 (c) K.E (d) None of the above
36. The unit of the Plank's constant corresponds to:
 (a) Angular momentum (b) Energy (c) Momentum (d) Force
37. In order to increase the kinetic energy of an ejected photoelectron, there should be an increase in:
 a) Wavelength of Radiation (b) Frequency of Radiation
 c) Intensity of Radiation (d) Both Wavelength and Intensity
38. Range of wavelength of visible light is:
 (a) $700\text{\AA} - 1000\text{\AA}$ (b) $1\text{nm} - 100\text{nm}$
 (c) $0.1\text{nm} - 1\text{nm}$ (d) $4000\text{\AA} - 7000\text{\AA}$
39. The minimum light frequency required for photoelectric effect is called:
 (a) Normal frequency (b) Cut - Off frequency
 (c) Threshold frequency (d) Natural frequency
40. Wave theory of light is unable to prove:
 (a) Black body radiation (b) Photoelectric effect
 (c) Compton Effect (d) All of them.
41. Photoelectric effect cannot be produced by non metallic surface because:
 (a) They have work function of higher value (b) They have large number of free electrons.
 (c) They haven't free electrons (d) None of the above.
42. Maximum change in wavelength of x-rays photon could be obtained when x-rays are scattered at:
 (a) Right angle (b) 180° (c) 45° (d) 0°
43. Dual nature of light is proved by:
 (a) Davisson & Germer experiment (b) Black body radiation
 (c) Photon electric effect (d) Compton's effect
44. The frequency of the incident photon after Compton effect will:
 (a) Increase (b) Decrease (c) Remain same (d) None of these
45. In Compton's scattering process, wave length of scattered X-rays.
 (a) Remains same (b) Increases (c) Decrease (d) None of these
46. The De-Broglie's wave length of a body is inversely proportional to its:
 (a) Mass (b) Momentum (c) Velocity (d) Energy
47. A particle like electron can behave in a wave like manner. Its momentum is:
 (a) h/λ (b) λ/h (c) $h\nu$ (d) h/v
- [2011]
48. Wave length λ of material particle of mass 'm' moving with the velocity v is given by:
 (a) $h\nu/m$ (b) h/mv (c) m/vh (d) mv/h
49. Davison and Germer experiment confirmed the:
 (a) Equivalent of mass and energy (b) Wave nature of light
 (c) Wave nature of matter (d) Uncertainty principle

[2013]

50. The experimental evidence of Einstein's mass energy equation is:
 (a) Photoelectric and Compton effect (b) Elastic collision
 (c) Pair production and annihilation of matter (d) Radioactive emission
51. The materialization of a photon into an electron and a positron is known as:
 (a) β -decay (b) meson decay (c) Pair production (d) Annihilation
52. A positron has the same mass as that of:
 (a) Electron (b) Neutron (c) Proton (d) Meson
53. The particle whose mass is closest to that of the electron is:
 (a) Positron (b) Neutron (c) Neutrinos (d) Proton
54. The reverse process of pair production is known as:
 (a) Annihilation (b) Anti pair production
 (c) Materialization of matter (d) None of these
55. Annihilation is the process in which:
 (a) Electron and proton combine to form a photon (b) Electron and positron combine to form two photons
 (c) Proton and electron combine to form high energy photon (d) None of these
56. Which one is the lightest particle?
 (a) Photon (b) Electron (c) Proton (d) Neutron

[2010, 2011]

57. The phenomenon of pair production takes place when the energy of the incident photon is greater than or equal to:
 (a) 0.51 MeV (b) 1.02 MeV (c) 0.051 MeV (d) None of these
58. The photoelectric emission takes place if:
 (a) $h\nu < \phi_0$ (b) $h\nu > \phi_0$ (c) $h\nu_0 > \phi_0$ (d) $\nu_0 < \phi_0$
59. According to the Principle of Uncertainty:
 (a) $\Delta E / \Delta t \approx h$ (b) $\Delta E \approx \Delta t / h$ (c) $(\Delta E)(h) \approx \Delta t$ (d) $(\Delta E)(\Delta t) \approx h$

[2012]

60. A photoelectric cell transforms light energy into:
 (a) Heat energy (b) Magnetic energy (c) Electrical energy (d) Sound energy
61. According to Einstein's special theory of relativity if mass of particle moving with speed of light will become:
 (a) zero (b) double (c) infinite (d) ten times
62. According to uncertainty principle:
 (a) $(\Delta x)(\Delta t) \sim \hbar$ (b) $(\Delta x)(\Delta p) \sim \hbar$ (c) $(\Delta E)(\Delta p) \sim \hbar$ (d) $(\Delta x)(\Delta E) \sim \hbar$

CH – 17: ADVENT OF MODERN PHYSICS

ANSWER KEYS

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
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| 21) | 22) | 23) | 24) | 25) | 26) | 27) | 28) | 29) | 30) |
| 31) | 32) | 33) | 34) | 35) | 36) | 37) | 38) | 39) | 40) |
| 41) | 42) | 43) | 44) | 45) | 46) | 47) | 48) | 49) | 50) |
| 51) | 52) | 53) | 54) | 55) | 56) | 57) | 58) | 59) | 60) |
| 61) | 62) | | | | | | | | |

CHAPTER – 18:

THE ATOMIC SPECTRA

- Radius of 1st orbit of hydrogen atom is 0.53\AA . Radius of fifth state of Hydrogen atoms is:
(a) 20\AA (b) 2.65\AA (c) 13.24\AA (d) Infinite
- Ground state energy of Hydrogen atom is:
(a) 3.45eV (b) 13.6eV (c) Zero (d) -13.6eV
- According to the Bohr's theory angular momentum of electron is integral multiple of:
(a) h (b) $h / 2\pi$ (c) $2\pi / h$ (d) h / π
- Frequency of Photon emitted from Bohr's theory is given by:
(a) $E_f - E_i / h$ (b) $-13.6\text{eV} / n^2$ (c) E / h (d) None of these
- Liner and angular momentum of electron of hydrogen atom is linked by:
(a) Energy Constant (b) Quantum number of state
(c) Plank's Constant (d) Orbital radius
- When electron jumps from ground state to excited state its energy:
(a) Remains same (b) Increases (c) Decreases (d) None of these
- As we move to higher energy states in hydrogen atom. The difference of energies of electron in successive atomic orbits.
(a) First increases then decreases (b) Decreases
(c) Remains constant (d) Increases
- In Balmer series electron falls into:
(a) $n = 2$ (b) $n = 4$ (c) $n = 1$ (d) $n = 3$
- The first spectral line emitted in Lyman Series of Hydrogen atom when electrons falls from:
(a) $n = 2$ (b) $n = 3$ (c) $n = \infty$ (d) $n = 1$
- The first spectral line emitted in Lyman Series of Hydrogen atom when electrons falls from:
(a) $n = 2$ (b) $n = 3$ (c) $n = \infty$ (d) $n = 1$
- Paschen series is obtained due to transition of electron in hydrogen atom from any excited state to:
(a) Ground state (b) Second state (c) Third state (d) Fifth state
- Spectral lines in the Balmer series of Hydrogen atom lies in the region of:
(a) Visible light (b) Infra red rays (c) Ultraviolet rays (d) X-rays
- The wave length of lines emitted in Lyman series lies in the:
(a) Visible region (b) Ultraviolet region (c) Infrared region (d) Micro wave region
- Brackett series of hydrogen atom spectrum lies in:
(a) Ultraviolet region (b) Visible region (c) infrared region (d) All of these
- Hydrogen atom spectrum consists of lines in:
(a) Ultraviolet region (b) Visible region (c) Infrared region (d) All of them
- Wave length of maximum radiant energy in Hydrogen atom spectrum belongs to:
(a) Balmer series (b) P-fund series (c) Lyman series (d) Paschen series.
- Wave length of minimum radiant energy in hydrogen atom belongs to:
(a) P-fund series (b) Balmer series (c) Paschen series (d) Lyman series
- In Hydrogen atom spectrum longest wave length of radiations belongs to:
(a) Paschen series (b) P - fund series (c) Balmer series (d) Lyman series
- In the spectrum of hydrogen all wavelength do not exist because:
(a) The energy levels are continuous (b) Energy levels are discrete
(c) Energy levels are equi-spaced (d) None of these

20. Max Planck is well known because of his
 - (a) Energy Quantization
 - (b) Energy Conservation
 - (c) Wave particle Duality
 - (d) Momentum Conservation
21. When an electron falls from the 3rd orbit to the 1st orbit in the Hydrogen atom, the lines spectrum obtained belongs to:
 - (a) Bracket Series
 - (b) Lyman Series
 - (c) Balmer Series
 - (d) Paschen Series
22. When fast moving electrons are stopped by a substance of high atomic weight like tungsten it give rise to
 - (a) X-rays
 - (b) β -rays
 - (c) Gamma rays
 - (d) Positive rays
23. The production of X-rays can be regarded as the inverse of:
 - (a) Compton Effect
 - (b) Photoelectric effect
 - (c) Laser
 - (d) Mass effect
24. X-ray are:
 - (a) Stream of negatively charged particles
 - (b) A stream of positively charge particles
 - (c) Electromagnetic waves
 - (d) Non of the above
25. Range of wave length of X-rays is:
 - (a) 100mm – 0.1000nm
 - (b) 0.1nm – 1 nm
 - (c) 400nm – 700nm
 - (d) 700nm – 1000nm
26. X-rays are produced when:
 - (a) Electron loses its energy in the nucleus
 - (b) Electron jumps to higher state
 - (c) Electron falls to ground state
 - (d) All of these
27. In Roentgen tube the intensity of X-ray depends upon:
 - (a) Distance between anode and cathode
 - (b) Target material
 - (c) Accelerating voltage
 - (d) Filament current
28. Laser produces
 - a) An electron beam
 - b) A neutron beam
 - c) A coherent beam of light
 - d) none of these
29. Ruby is a crystal of:
 - (a) CaCO_3 with impurity of Cl ions
 - (b) NaCl with impurity of Ca ions
 - (c) Al_2O_3 with impurity of Cr ions
 - (d) None of the above
30. The process of collecting excited electrons from unstable state into stable state is called:
 - (a) Induced absorption
 - (b) Emitted absorption
 - (c) Population Inversion
 - (d) De excitation
31. The most stable state of ruby is:
 - (a) Meta State
 - (b) Ground state
 - (c) Excited state
 - (d) Higher state
32. An atom can usually remains in an ordinary excited state for:
 - (a) 10^8 second
 - (b) 10^{-8} second
 - (c) 10^3 second
 - (d) 10^{-3} second
33. Usually the life of an electron in metastable is of the order of
 - (a) 10^8 second
 - (b) 10^{-3} second
 - (c) 10^3 second
 - (d) 10^{-8} second
34. The life time of an electron in the metastable state:
 - (a) Is more than any ordinary excited stable
 - (b) Less than any ordinary excited state
 - (c) Equal to any ordinary excited state
 - (d) Half life of the element used

CH – 18: THE ATOMIC SPECTRA

ANSWER KEYS

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
| 11) | 12) | 13) | 14) | 15) | 16) | 17) | 18) | 19) | 20) |
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| 31) | 32) | 33) | 34) | | | | | | |

CHAPTER – 19:

THE ATOMIC NUCLEUS

1. Number of neutrons in ${}_{92}\text{U}^{235}$ is:
(a) 92 (b) 146 (c) 235 (d) 143
2. On ionizing gases, alpha particles by capturing electrons, convert into:
(a) Radioactive particle (b) None of the above (c) Helium atom (d) Energy
3. In an alpha decay, mass number of parent nuclei:
(a) Remain same (b) Changes by 2 units. (c) Decrease by 4 units (d) Increase by 4 units.
4. The process of beta emission from a nucleus involves the change in:
(a) No change occurs (b) Mass number (c) Charge number (d) Both b and c
[2009, 2006, 2005]
5. The atomic number of a radioactive element is increased as a result of:
(a) α - Particle (b) γ - radiation (c) β - Radiation (d) Pair production.
6. In β^+ decay, a parent nucleus converts into a daughter nucleus accompanied with:
(a) Alpha Particle. (b) Electron. (c) Beta particle (d) Positron.
7. In the process of gamma emission from a nucleus, which of the following will change:
(a) Charge number. (b) Mass number (c) No change occurs (d) Both mass & charge no
[2001]
8. The nuclei having the same mass number but different atomic numbers are called:
(a) Isotopes (b) Isobars (c) Isotones (d) Isomers
[2006, 2003]
9. In the nuclear reaction: ${}_7\text{N}^{14} + {}_2\text{He}^4 \rightarrow {}_8\text{O}^{17} + \text{-----}$ the missing particle is
(a) Proton (b) Neutron (c) Electron (d) α - particle
10. In periodic table most stable nuclei
(a) Mass number is greater than two (b) Charge number is greater than two.
(c) Mass number lies between 30 and 60. (d) Charge number lie between 30 and 60.
[2013, 2010, 2007, 2002]
11. In radioactive decay law, $N = N_0 e^{-\lambda t}$, λ represents:
(a) Wave length (b) Half life (c) Decay constant (d) Mass Radioactive Sample
12. Decay process in radioactive nuclei takes place:
(a) Conditionally (b) Linearly (c) Exponentially (d) Smoothly.
[2008]
13. The rate of decay of a radioactive substance:
(a) Increases with increasing time (b) Decreases exponentially with the increasing time
(c) remains constant with increasing time (d) None of these
14. Activity of Radioactive nuclei is given by:
(a) N/N_0 (b) N_0/N (c) λ/N (d) λN
15. The rate of decrease of decay in parent nuclei is directly proportional to the:
(a) Activity. (b) Half life (c) Relative activity (d) No of parent nuclei
16. The time in which half of parent nuclear decay is called:
(a) Life time (b) Time of decay. (c) Decay interval (d) Half life
17. Half life of radioactive elements is given by:
(a) $0.693/\lambda$ (b) 0.693 (c) 0.693λ (d) $\lambda/0$.

18. The half – life of radium is 1600 years. After 6400 years, the sample of the surviving radium would be its
 a) 1 / 4 b) 1 / 8 c) 1 / 16 d) 1 / 2
- [2005]
19. The energy equivalent to the mass reduced in the formation of a nucleus is called:
 (a) Nuclear energy (b) Binding energy (c) Fusion energy (d) Potential energy
- [2005]
20. One atomic mass unit is equal to:
 (a) 1.6×10^{-19} J (b) 9.1×10^{-27} kg (c) 931×10^6 eV (d) 9×10^9 eV
- [2003, 2002]
21. The process of the splitting of a heavy nucleus into smaller fragments is called:
 (a) Fusion (b) Fission (c) Pair production (d) Annihilation of matter
22. In nuclear fission, ${}_{92}\text{U}^{235}$ is bombarded by:
 (a) Low energy neutron (b) Slow Neutron. (c) High energy neutron (d) Fast neutron.
23. A material consisting of the fissionable isotopes of Uranium is called the:
 (a) Reaction fuel. (b) Nuclear fuel. (c) Atom bomb fuel (d) Atomic fuel.
24. Critical mass of fissionable isotope of Uranium is:
 (a) 7.2% (b) 0.72% (c) 0.072% (d) 72 %
- [2002]
25. Breeder Reactor is used to convert:
 (a) ${}_{92}\text{U}^{235}$ into ${}_{56}\text{Ba}^{144}$ and ${}_{36}\text{Kr}^{89}$ (b) ${}_{92}\text{U}^{238}$ into ${}_{56}\text{Ba}^{144}$ and ${}_{36}\text{Kr}^{89}$
 (c) ${}_{92}\text{U}^{238}$ into ${}_{94}\text{Pu}^{239}$ (d) ${}_{92}\text{U}^{235}$ into ${}_{94}\text{U}^{238}$
26. The process of converting non-fissionable uranium into fissionable is called.
 (a) Disintegration. (b) Breeding (c) None of these (d) Decay process
27. LMFBR is the abbreviation of:
 (a) Liquid metal fast breeder reactor (b) Lithium metal fission breeder reaction
 (c) Lithium metal of fission and bomb radiation. (d) None of these

CH – 19: THE ATOMIC NUCLEUS**ANSWER KEYS**

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| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
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| 21) | 22) | 23) | 24) | 25) | 26) | 27) | | | |

CHAPTER – 20:

NUCLEAR RADIATIONS

1. Geiger – Muller counter contains:
 - a) Argon and Alcohol
 - b) Alcohol only
 - c) Ions
 - d) Super-cooled water vapors
2. Electric field generated in G.M. tube is due to:
 - (a) Ionization of alcohol
 - (b) Low boiling point of alcohol
 - (c) Low vapors pressure of alcohol
 - (d) All of these
3. Study and discovery of radio isotopes is made easier by a device called:
 - (a) G.M counter
 - (b) Cloud chamber
 - (c) Spectrometer
 - (d) Tachometer
4. Path of track of droplets of α - particles in cloud chamber is
 - (a) Random streak
 - (b) Indefinite streak
 - (c) Continuous streak
 - (d) Discontinuous streak
- [2002]
5. Wilson cloud chamber is used:
 - (a) For the study of clouds.
 - (b) To produce x-rays
 - (c) To produce β - particles
 - (d) To take photograph of the track of high velocity ions
6. Cancer of the thyroid glands is treated by
 - (a) ${}_1\text{H}^3$
 - (b) ${}_6\text{C}^{14}$
 - (c) ${}_{53}\text{I}^{131}$
 - (d) ${}_6\text{C}^{19}$
- [2015, 2003]
7. If a small quantity of radioactive iodine ${}_{53}\text{I}^{131}$ is taken in food, most of it is deposited in:
 - (a) Kidneys
 - (b) Brain
 - (c) Thyroid glands
 - (d) All glands
8. A modern technique of tracing complexity of molecules is called:
 - (a) Tracer technique
 - (b) Radiology
 - (c) Molecular technique
 - (d) Polymerization
- [2012, 2006, 2003]
9. In treating localized cancerous tumors, we use a narrow beam of:
 - (a) α - rays from cobalt 60
 - (b) β - rays from cobalt 60
 - (c) γ - rays from cobalt 60
 - (d) Laser from cobalt 60
10. Radio active elements used as tracer in medicine are:
 - (a) ${}_{53}\text{I}^{131}$ and ${}_6\text{C}^{14}$
 - (b) ${}_6\text{C}^{12}$ and ${}_{53}\text{I}^{131}$
 - (c) ${}_{20}\text{Ca}^{42}$ and ${}_1\text{H}^3$
 - (d) ${}_6\text{C}^{14}$
- [2015,13]
11. The rate of flow of blood is determined by:
 - (a) ${}_{11}\text{Na}^{24}$
 - (b) ${}_6\text{C}^{14}$
 - (c) Cobalt – 60
 - (d) ${}_{53}\text{I}^{131}$
12. Ulceration, cataract of eye and cancer are the examples of:
 - (a) Viral disease
 - (b) Bacterial disease
 - (c) Somatic disease
 - (d) Genetic disease
13. The technique by which the absorption of CO_2 , the seed of photosynthesis and the distribution of Plant food could be traced is called:
 - (a) Radiation Therapy
 - (b) Polymerization
 - (c) Auto-Radiography
 - (d) Tracer technique
14. The age of the specimen such as dead body, wood, bone or fossil, could be measured by C^{14} called:
 - (a) Carbon detector
 - (b) Radio analyzer
 - (c) Radio carbon dating
 - (d) Radio carbon tracer

CH – 20: NUCLEAR RADIATIONS

ANSWER KEYS

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|-----|-----|-----|-----|----|----|----|----|----|-----|
| 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) |
| 11) | 12) | 13) | 14) | | | | | | |