Physics 2012

3. A particle moves with constant speed in circular path. During the motion its
(a) velocity is constant
(b) acceleration is constant
(c) radial acceleration towards the inside
(d) radial acceleration towards the outside

Ans.(b)

5. Which one of the following is scalar?
(a) Electric potential
(b) Momentum
(c) Velocity
(d) Force

Ans.(a)

7. If total torque of the system is zero, then the total angular momentum of the system will be constant at
(a) direction
(b) both direction and magnitude
(c) magnitude
(d) None of the above

Ans.(b)

9. The equation of progressive wave is y = a sin (200 (200 t - xl, where x is in metre and x is in second. The velocity of wave will be
(a) 200 m/s
(b) 100 m/s
(c) 50 m/s
(d) None of these

Ans.(a)

10. According to Newtons third law, which of the following statements is true?
(a) Both forces are acted upon one body
(b) Both forces are acted upon the different bodies
(c) Directions and magnitudes of both forces are same
(d) Both forces have different magnitudes and opposite directions

Ans.(b)

14. If the length and radius of wire are doubled then Young's modulus of the wire will be
(a) doubled
(b) half
(c) constant
(d) None of these

Ans.(b)

16. What is the true of following in an elastic collision?
(a) The kinetic energy will be conservative
(b) The momentum will be conservative
(c) Both kinetic energy and momentum will be conservative
(d) None of the above

Ans.(c)

17. If the speed of particle became twice, then which of the following quantities will be doubled?
(a) Length
(b) Kinetic energy
(c) Momentum
(d) Acceleration

Ans.(c)

18. If in the lift, the body of mass 5 kg is suspended to spring balance, the lift moves downward with acceleration 10 m/s2, then the reading of spring balance is
(a) more than 5 kg-wt
(b) less than 5 kg-wt
(c)Skg-wt
(d)zero

Ans.(d)

19. The ratio of fraction of displacement of mass with which of the following quantities is constant if its motion is simple harmonic?
(a) Velocity
(b) Acceleration

(c) Time period
(d) Mass

Ans.(b)

20. If the maximum acceleration of motion of a particle is 16 m/s2 and the maximum velocity is 24 rn/s, then amplitude of the particle will be
(a)36m
(b)20m
(c) 16 m
(d) None of these

Ans.(a)

21. Two wires A and B are made from the same material. The ratio of lengths and diameters respectively are 1:2 and 2:1. If these are stretched by a force, then the ratio of these expansion of lengths will be
(a)2:1
(b)1:4
(c)1:8
(d)8:1

Ans.(c)

24. The gas is expanded in such a way so that its pressure and volume laws follow pV2 = constant. In this process, the gas will become
(a) hot
(b) cold
(c) nor hot neither cold
(d) first hot after that cold

Ans.(b)

25. The time period of simple pendulum depends on
(a) length
(b) mass
(c) momentum
(d) density

Ans.(a)

27. A particle of mass 0.10 kg is executing simple harmonic motion at the rate of 20 oscillation/s2 and its amplitude is 0.05 m. Its energy at equilibrium position will be
(a)2J

(b)4J
(c)1J
(d)zero

Ans.(a)

28. When any rigid body is in rotational motion about any axis then what Is the same for all particles?
(a) Angular velocity
(b) Linear velocity
(c) Radius
(d) Linear acceleration

Ans.(a)

30. The emitted energy from any body depends on
(a) temperature
(b) nature of matter
(c) area
(d) None of these

Ans.(d)

31. What is the absorptive power of ideal black body?
(a)O
(b)1
(c)
(d) None of these

Ans.(b)

35. Absolute temperature is that temperature at which
(a) molecular motion of all particles becomes zero
(b) molecules move randomly
(c) gas's atoms change to liquid
(d) None of the above

Ans.(a)

37. When the liquid does not wet the sides of a solid, then angle of contact is
(a) obtuse
(b) acute
(c) **90**
(d) zero

Ans.(a)

38. A tuning fork is placed on the table. It produces maximum sound due to
(a) beat
(b) resonance
(c) interference
(d) stationary waves

Ans.(b)

39. A body cools down from 61C to 59C in 4 mm. If the temperature of atmosphere is 30C, then the time taken to cool it from 51C to 49C will be
(a)4min
(b)2min
(c) 6 mim
(d) 8 mim

Ans.(c)

40. Temperature is a measurement of degree of coldness or hotness of an object. The definition is based on
(a) Zeroth law of thermodynamics
(b) First law of thermodynamics
(c) Second law of thermodynamics
(d) Newton's law of cooling

Ans.(a)

41. The correct relation between isothermal gradient and adiabatic gradient is
(a) adiabatic gradient = y x isothermal gradient
(b) isothermal gradient = y x adiabatic gradient
(c) adiabatic gradient = y2 x isothermal gradient
(d) isothermal gradient = y2 x adiabatic gradient

Ans.(a)

42. If root mean square velocity for hydrogen gas is 318 m/s and density is 8.99 xl(T5 kg/m3 then the pressure of gas will be
(a)3atm
(b)latm

(c) 2 atm
(d) None of these

Ans.(a)

43. pV/ kT represents
(a) number of molecules
(b) number of moles
(c) universal gas constant
(d) None of the above

Ans.(a)

44. The spherical shape of rain drop is due to
(a) surface tension
(b) viscosity
(c) elasticity
(d) gravity

Ans.(a)

49. To cool a liquid rapidly, cooling system should be used
(a) in middle
(b) on head
(c) any point
(d) None of these

Ans.(b)

50. A stone Is shot straight upward with a speed of 20 rn/s from a tower 200 rn high. The speed with which it strikes the ground is approximately
(a) 60 m/s
(b) 65 m/s
(c) 70 m/s
(d) 75 m/s

Ans.(a)

51. When light ray goes from air to water, then its quality that remains unchanged is
(a) frequency
(b) wavelength
(c) speed
(d) None of these

Ans.(a)

52. Sources are in phase when
(a) first phase is constant with the time
(b) first phase changes with the time
(c) first phase is constant with the displacement
(d) None of the above

Ans.(a)

53. Find the fundamental frequency of a closed pipe, if the length of pipe is 1 m. (speed of sound in air = 320 m/s)
(a) 320 Hz
(b) 160 Hz
(c)8OHz
(d)4OHz

Ans.(c)

54. The musical interval between two tones of frequencies 400 Hz and 200 Hz is
(a) 2
(b) 200
(c) 1
(d) None of these

Ans.(a)

57. If in diffraction by single slit, the width of slit is equal to wavelength of light, then what happened at the screen?
(a) Image of slit
(b) Diffraction band
(c) Equal illuminate
(d) Unequal illuminate

Ans.(c)

58. Two positive point charges 12 *1* C are 8 *1* C are placed at a distance work done to bring closer 4 cm will be
(a) 5.8 J
(b) 5.8 eV
(c) 13 J
(d) 13 eV

Ans.(c)

59. The object at distance of 20 cm is placed in front of convex lens of focal length 10 cm, where will be image formed?

(a) 10 cm
(b) 20 cm
(c)5cm
(d)25cm

Ans.(b)

61. Two tuning forks of frequencies 256 and 258 Hz produce S beats/s with the third tuning fork. The frequency of third tuning fork will be
(a) 120 Hz
(b) 115 Hz
(c) 105 Hz
(d) 95 Hz

Ans.(c)

67. The electric field gets induced by changing magnetic force lines passing through a conductor. This can be understood by which law?
(a) Faraday's law
(b) Ampere's law
(c) Lenz's law
(d) None of these

Ans.(a)

68. In a transformer, e = 110 V and fig = 440 V. then its round ratio will be
(a)4:1
(b)1:4
(c)1:3
(d)1:2

Ans.(b)

70. In a potentiometer experiment two cells of emf' s E1 and E2 are used in series and in conjunction and the balancing length is found to be 58 cm of the wire. If the polarity of E2 is reversed, then the balancing length becomes 29 cm. The ratio .&of
***E*, the emf of the two cells is**
(a)1:1
(b)2:1

(c)3:1
(d)4:1

Ans.(c)

75. Generator generates electric current. In actual, it is a sourcc of
(a) inducted force
(b) emf
(c) electric force
(d) None of these

Ans.(b)

76. Lenzs law is accordance on
(a) conservation of energy
(b) conservation of charge
(c) conservation of momentum
(d) None of the above

Ans.(a)

77. When the current flows from the conductor, then force above of magnetic field is
(a) in circular form around the wire
(b) near the wire and parallel to wire
(c) near the wire and perpendicular to wire
(d) None of the above

Ans.(a)

78. In the following figure, a coil of radius 2 cm is shown along with a coil of radius 7 cm present at its centre. Each coil has 100 round and big coil has 5 A current. What should be the current In small coil so that total magnetic field at centre is 2 mT?
(a) 1.44 A
(b) 0.793 A
(c)2.88A
(d)3.4A

Ans.(b)

80. On the basis which of the following a nucleus can be explained?
(a) By nuclear liquid drop model
(b) By Thomson model

(C) By Rutherford model
(d) None of the above

Ans.(a)

84. Increasing the principle quantum number, the energy gap between consequence energy state
(a) increases
(b) decreases
(c) remains unchanged
(d) None of these

Ans.(b)

85. First law of Kirchhoff Is accordance on
(a) conservation of charge
(b) conservation of energy
(c) conservation of momentum
(d) None of the above

Ans.(a)

86. Three capacitors of equal capacitances 3 *11* F each are connected in a circuit. Then their maximum arid minimum capacities will be
(a) ***9uF,1uF***
(b) *8uF,2uF*
(c) *9uF,OuF*
(d) *3uF,2uF*

Ans.(a)

87. For non-conductors, the forbidden energy gap is
(a)5eV
(b)1.leV
(c) 20 eV
(d) None of these

Ans.(a)

88. Change of AC to DC is called
(a) rectification
(b) polarization

(c) amplification
(d) None of these

Ans.(a)

89. Write the resolving powers of a, p and y to ascending order.
(a) *a,b,y*
(b) y,b,a
(c) *b,a,y*
(d) None of these

Ans.(a)

90. DiffractIon of electron beam Is proved by
(a) Davisson-Germer
(b) Berg
(c) Newton
(d) Einsteen

Ans.(a)

91. On the basis of which photoelectric effect is explained?
(a) Relativity theory
(b) The electromagnetic waves of light
(c) Energy spectrum of atoms
(d) None of the above

Ans.(c)

95. The valancy of carbon atom is
(a)1
(b)2
(c)3
(d)4

Ans.(d)

96. What is valancy of impurity added for donar atoms?
(a) Pentavalent
(b) Trivalent
(c) Tertravalent
(d) None of these

Ans.(a)

98. What should be the capacity of capacitor of R-C circuit, in which the value of resistance is 10 to become the value of time constant 10?
(a) lOuF
(b) lOOuF
(c) *1OOOuF*
(d) 1O,000uF

Ans.(d)

99. The energy needed to remove the one electron from neutral helium atom is 24.6 eV. Then the energy needed to remove both the electrons from neutral helium atom is
(a) 79.0 eV
(b) 51.8 eV
(c) 49.2 eV
(d) 38.2 eV

Ans.(a)