Physics 2011

1. The unit of surface tension is
(a)N/C
(b)N/m
(c)C/N
(d)m/N

Ans.(b)

4. The acceleration a of moving body from rest is 2 (t — 1). Then, the velocity at 5 s will be
(a) 15 m/s
(b) 25 m/s
(c) 35 m/s
(d) 45 m/s

Ans.(a)

7. The momenta of two particles of masses m and 2m are 2p and p respectively. The ratio of their kinetic energies will be
(a)2:1
(b)4:1
(c)1:8
(d)8:1

Ans.(d)

8. If the escape velocity at the earth is 11.2 km/s, then what will be the escape velocity of planet having mass 4 times of earth and gravitational acceleration equal to earth?
(a) 7.9 m/s
(b) 11.2 km/s
(c) 15.7 km/s
(d) None of these

Ans.(c)

10. If the range and time period of projectile are related to R = 5T2, then the angle of projection will be
(a)r/2
(b)r/3
(c) r/4
(d) r/6

Ans.(c)

13. At which of the following positions, the acceleration of the particle in SUM will be maximum?
(a) At mean position
(b) At peak position
(c) At half position of amplitude
(d) None of the above

Ans.(b)

18. The two particles A and B remain at rest position. Both of them due to their attraction forces move towards each other. At any instant the velocity of A is V. At that instant velocity of B is 2v. The velocity of centre- of mass of the system will be
(a)v
(b)zero
(c)1.5v
(d)3v

Ans.(b)

20. A hollow cylinder and a solid cylinder having same mass and diameter are rolled at inclined plane, then which will reach first at the bottom?
(a) Both at same time
(b) Hollow cylinder
(c) Solid cylinder
(d) Which has more density

Ans.(c)

23. A player takes a complete round in path of radius R in 40 s. After 2 mm 20 s, its displacement will be
(a) zero
(b) 2R
(c)ZrR
(d)7rR

Ans.(b)

28. The minimum distance of reflected surface from the source for listening the echo of sound is
(a)28m
(b) 18m

(c) 19 m
(d) 16.5 m

Ans.(d)

29. Two sound waves of wavelengths 5 m and 6 m formed 30 beats in 3 s. The velocity of sound is
(a) 300 m/s
(b) 310 m/s
(c) 320 m/s
(d) 330 m/s

Ans.(a)

30. Two waves are in phase when
(a) amplitude is same
(b) wavelength is same
(c) amplitude and wavelength are same
(d) phase difference remains constant

Ans.(d)

32. Newton's law of cooling derived by
(a) Stefan's law
(b) Kirchhoffs law
(c) Wien's displacement law
(d) None of the above

Ans.(a)

33. Which of the following laws explains the spectrum of black body?
(a) Rayleigh - Jeans's law
(b) Planck's law
(c) Wien's displacement law
(d) Stefan's law

Ans.(b)

39. The capacity of spherical conductor is 0.1 *1* F, then its radius will be
(a)90m
(b)900m

(c)9000m
(d)zero

Ans.(b)

43. According to Kirchhoffs law the algebraic sum of currents meeting at a junction is
(a) limited
(b) zero
(c) infinite
(d) None of these

Ans.(b)

44. If a container filled by the ideal gas keeps in the moving car, the temperature of the gas
(a) will be increased
(b) will be decreased
(c) will remain unchanged
(d) None of the above

Ans.(c)

45. The number of turns of primary and secondary coils of transformer are 500 and 5000 respectively. The voltage and frequency of primary coil are 800 V and 50 Hz respectively, then the frequency and voltage of secondary coil will be
(a) 50 Hz, 8000V
(b)800Hz800V
(C) 50 Hz, 80V
(d)5OHz ,800V

Ans.(a)

46. If an ideal gas filled in a closed container and the container is open in vacuum, then its temperature will be
(a) increased
(b) decreased
(c) unchanged
(d) None of these

Ans.(b)

54. In the full-wave rectifier, the output frequency will be
(a)n
(b)2n

(c)n/2
(d)n2

Ans.(b)

55. The adiabatic coefficient of a gas is 7/5 .This gas will be
(a) He
(b) Ar
(c) Ne
(d) H2

Ans.(d)

61. The nature of bond in diamond is
(a) ionic
(b) covalent
(c) van der Waals
(d) metallic

Ans.(b)

62. Which of the following experiments does represent the wave nature of electrons?
(a) Davisson- Germer
(b) de-Broglie
(c) Rutherford
(d) Millikan oil drop

Ans.(b)

65. The temperature of star is 6060 K and maximum radiation emitted at 4653 A. For another star, the maximum radiation emitted at 4545 A. The temperature of another star will be
(a) 300 K
(b) 6204 K
(c) 3000 K
(d) 120 K

Ans.(b)

67. A body is walking away from a wall towards an observer at a speed of 2 rn/s and blows a whistle whose frequency is 680 Hz. The number of beats heard by the observed per second is (velocity of sound in air = 340 m/s)
(a) zero
(b) 2

(c)8
(d)4

Ans.(d)

69. For uranium nucleus, the value of nucleon binding energy will be
(a) 7.6eV
(b) 7.6 ,*U* eV
(c) 7.6 MeV
(d) 7.6 keV

Ans.(c)

71. By which of the following the nucleus can't be cleaved?
(a) a -ray
(b) y -ray
(c) *b* -ray
(d) Laser

Ans.(d)

72. Which of the following is not semiconductor?
(a)Si
(b)Ge
(c) NaCI
(d) Cds

Ans.(c)

73. For good emissive should be
(a) small work function and small melting point
(b) small work function and high melting point
(c) high work function and high melting point
(d) high work function and small melting point

Ans.(b)

74. The retarding potential for having zero photoe lectron current
(a) is proportional to the wavelength of incident light
(b) increases uniformly with the increase in the wavelength of incident light
(c) is proportional to the frequency of incident light
(d) increases uniformly with the increase in the frequency of incident light wave

Ans.(d)

75. From molecular theory of gas which of the following quantities at certainly for all gases will be same?
(a) Momentum
(b) Kinetic energy
(c) Velocity
(d) Mass

Ans.(b)

78. Which of the following instruments depends upon the coil which rotates in the magnetic field?
(a) Electric motor
(b) Dynamo
(c) Both (a) & (b)
(d) None of these

Ans.(c)

79. The principle of dynamo is
(a) electromagnetic induction
(b) magnetic induction
(c) electric induction
(d) None of the above

Ans.(a)

82. The potential of illuminate cathode, grid and plate of triode valve are 0, -3 and 80 V respectively. An electron moves with the kinetic energy of 5eV from the surface of cathode. On reaching the grid, the kinetic energy of electron will be
(a) 15eV
(b)2eV
(d)85eV
(d)3OeV

Ans.(b)

83. In photo-electric experiment, for incident light of 4000 A the stopping potential is 2 V. If the value of incident light is changed to 3000 A, the stopping potential will be

(a) 2 V
(b) less than 2 V

(c) zero
(d) more than 2 V

Ans.(d)

86. The root mean square velocity and density of ideal gas are 1840 rn/s and 0.8 kg/m3 respectively. Its pressure will be
(a) 9.02 x 105 N/m2
(b) 0.02 x 104 N/m2
(c) 9.02 x 103 N/rn2
(d) 9.02 x 106 N/m2

Ans.(a)

89. 800 identical water drops are combined to form a big drop. Then, the ratio of the final surface energy to the initial surface energy of all the drops together is
(a)1:10
(b)1:15
(c)1:20
(d)1:25

Ans.(c)

90. Three light bulbs of 100 W, 200 W and 40 W are connected in series with 200 V source. The current will be
(a) maximum in bulb of 100 W
(b) maximum In bulb of 200 W
(c) maximum in bulb of 40 W
(d) equal in all

Ans.(d)

91. A gas mixture consists of 2 moles of oxygen and 4 moles of argan at temperature T. Neglecting all vibrational moles, the total internal energy of the system is

(a)4RT
(b)15RT
(c) 9 RT
(d) 11 RT

Ans.(d)

92. One mole (y- = 5/3) of monoatomic gas mixture and the one mole of diatomic gas (y = 7/51. For mixtured the value of y will be

(a) 1.40
(b) 1.50
(c) 1.53
(d) 3.07

Ans.(b)

97. Let g be the acceleration due to gravity at earth's surface and K be the rotational kinetic energy of the earth. Suppose the earth's radius decreased by 2% keeping all other quantities same, then
(a) g decreases by 2% and K decreases by 4%
(b) g decreases by 4% and K increases by 2%
(c) g increases by 4% and K increases by 4%
(d) g decreases by 4% and K increases by 4%

Ans.(c)

98. The gravitational force between the point masses m and M is F. Now if an another point mass 2m placed in front and touch of m, then force on M due to m and total force on M will be
(a) 2F, F
(b) F, 2F
(c) F, 3F
(d) F, F

Ans.(c)

99. Beat Is listened by two sound sources of same amplitude and same frequency. Intensity of sound of maximum beat as compare to the intensity of any source will be
(a)equal
(b) two times
(c) four times
(d) eight times

Ans.(c)

100. The equation of wave is y =0.5 sin (101 + xl, This is moving along x-axis. Its velocity is
(a)l0m/s
(b)20m/s
(c) 5 m/s
(d) None of these

Ans.(a)

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