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Knowledge is Discipline
BJNP
Learning with the Speed of Mumbai and the Tradition of Kota

Max Marks: 100 **Date: 13.11.2022**

ARJUNA BATCH
PHYSICS : REVISION TEST-2 (SET B)
Topic: Wave Optics + Rotational Motion + Elasticity

1. A solid sphere of mass 500 gm and radius 10 cm rolls without slipping with the velocity 20 cm/s. The total kinetic energy of the sphere will be

   (a) 0.014 J (b) 0.028 J (c) 280 J (d) 140 J

2. The ratio of rotational and translatory kinetic energies of a sphere is

   (a) $\frac{2}{9}$ (b) $\frac{2}{7}$ (c) $\frac{2}{5}$ (d) $\frac{7}{2}$

3. A thin hollow cylinder open at both ends:

   (i) Slides without rotating

   (ii) Rolls without slipping, with the same speed.

   The ratio of kinetic energy in the two cases is

   (a) 1 : 1 (b) 4 : 1 (c) 1 : 2 (d) 2 : 1

4. A spherical ball rolls on a table without slipping. Then the fraction of its total energy associated with rotation is

   (a) $\frac{2}{5}$ (b) $\frac{2}{7}$ (c) $\frac{3}{5}$ (d) $\frac{3}{7}$

5. A body is rolling without slipping on a horizontal plane. If the rotational energy of the body is 40% of the total kinetic energy, then the body might be

   (a) Cylinder (b) Hollow sphere (c) Solid cylinder (d) Ring

6. Consider a uniform square plate of side a and mass m. The moment of inertia of this plate about an axis perpendicular to its plane and passing through one of its corners is

   (a) 5/6 ma^2 (b) 1/12 ma^2 (c) 7/12 ma^2 (d) 2/3 ma^2

Space for Rough Work

7. The moment of inertia of a rod about an axis through its centre and perpendicular to it is $\frac{1}{12}ML^2$ (where M is the mass and L is the length of the rod). The rod is bent in the middle so that the two halves makes an angular of 60º. The same axis would be

(a) $\frac{1}{48}ML^2$ (b) $\frac{1}{12}ML^2$ (c) $\frac{1}{24}ML^2$ (d) $\frac{ML^2}{8\sqrt{3}}$

8. The moment of inertia of a thin circular disc about an axis passing through its centre and perpendicular to its plane is I. Then, the moment of inertia of the disc about an axis parallel to its diameter and touching the edge of the rim is

(a) I (b) 2I (c) $\frac{3}{2}I$ (d) $\frac{5}{2}I$

9. Two spheres of equal masses, one of which is a thin spherical shell and the other a solid, have the same moment of inertia about their respective diameters. The ratio of their radii will be

(a) 5 : 7 (b) 3 : 5 (c) $\sqrt{3}:\sqrt{5}$ (d) $\sqrt{3}:\sqrt{7}$

10. A thin wire of mass M and length L is bent to form a circulating. The moment of inertia of this ring about its axis is

(a) $\frac{1}{4\pi^2}ML^2$ (b) $\frac{1}{12}ML^2$ (c) $\frac{1}{3\pi^2}ML^2$ (d) $\frac{1}{\pi^2}ML^2$

11. A circular disc of radius R and thickness $\frac{R}{6}$ has moment of inertia I about an axis passing through its centre and perpendicular to its plane. It is melted and recasted into a solid sphere. The moment of inertia of the sphere about its diameter as axis of rotation is

(a) I (b) $\frac{2I}{8}$ (c) $\frac{I}{5}$ (d) $\frac{I}{10}$

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12. The moment of inertia of a meter scale of mass 0.6 kg about an axis perpendicular to the scale and located at the 20 cm position on the scale in kg m^2 is (Breadth of the scale is negligible)

(a) 0.074 (b) 0.104 (c) 0.148 (d) 0.208

13. Two discs of the same material and thickness have radii 0.2 m and 0.6 m. Their moments of inertia about their axes will be in the ratio

(a) 1 : 81 (b) 1 : 27 (c) 1 : 9 (d) 1 : 3

14. A circular disc is to be made by using iron and aluminium, so that it acquires maximum moment of inertia about its geometrical axis. It is possible with

(a) Iron and aluminium layers in alternate order (b) Aluminium at interior and iron surrounding it
(c) Iron at interior and aluminium surrounding it (d) Either (a) or (c)

15. The moment of inertia of semicircular ring about its centre is

(a) MR^2 (b) $\frac{MR^2}{2}$ (c) $\frac{MR^2}{4}$ (d) None of these

16. Moment of inertia of a disc about its own axis is I. Its moment of inertia about a tangential axis in its plane is

(a) $\frac{5}{2}I$ (b) 3 I (c) $\frac{3}{2}I$ (d) 2 I

17. A ball rolls without slipping. The radius of gyration of the ball about an axis passing through its centre of mass K. If radius of the ball be R, then the fraction of total energy associated with its rotational energy will be

(a) $\frac{K^2}{R^2}$ (b) $\frac{K^2}{K^2+R^2}$ (c) $\frac{R^2}{K^2+R^2}$ (d) $\frac{K^2+R^2}{R^2}$

18. In a bicycle the radius of rear wheel is twice the radius of front wheel. If v_F and v_r are speeds of top most points of wheel, then

(a) $v_r = 2\,v_F$ (b) $v_F = 2\,v_r$ (c) $v_F = v_r$ (d) $v_F > v_r$

19. The total kinetic energy of a body of mass 10 kg and radius 0.5 m moving with a velocity of 2 m/s without slipping is 32.8 joule. The radius of gyration of the body is

(a) 0.25 m (b) 0.2 m (c) 0.5 m (d) 0.4 m

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20. The moment of inertia of a body about a given axis is 2.4 kg–m^2. To produce a rotational kinetic energy of 750 J, an angular acceleration of 5 rad/s^2 must be applied about that axis for

(a) 6 sec (b) 5 sec (c) 4 sec (d) 3 sec

21. The dimensional formula for stress is same as that for:

(a) force (b) pressure (c) torque (d) work

22. Which of the following is NOT the reason for calling steel more elastic than rubber?

(a) For given load there is more strain in rubber than for rubber.

(b) Young's modulus for steel is much larger than that for rubber.

(c) For given strain, there is more stress in steel than in rubber.

(d) Steel wire returns to original length when load is removed but rubber does not do so.

23. The slope of the stress verses strain curve is:

(a) directly proportional to modulus of elasticity

(b) inversely proportional to the modulus of elasticity

(c) directly proportional to the elastic limit

(d) inversely proportional to the elastic limit

24. A wire of length L, radius r when stretched with a force F changes in length by l. What will be the change in length of a wire of same material having 2 L, radius 2r and stretched by a force 2F?

(a) $l/2$ (b) l (c) $2l$ (d) $4l$

25. A cable that can support a load W is cut into two equal parts. The maximum load that can be supported by either part is:

(a) $\frac{W}{4}$ (b) $\frac{W}{2}$ (c) W (d) 2W

26. A wire is stretched to double of its length. The strain is:

(a) 2 (b) 1 (c) zero (d) 0.5

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27. An iron bar of length L and area of cross section A is heated from 20ºC to 80VC. The bar is so held between supports that it is neither allowed to extend nor allowed to bend. If the stress developed in the bar be S, then:

(a) $S \propto L$ (b) $S \propto \frac{1}{L}$ (c) $S \propto A$ (d) $S \propto \frac{1}{A}$

28. If the breaking strength of a rod of diameter 2 cm is 2×10^5 N, then that for a rod of same material and diameter 1 cm will be:

(a) 2×10^5 N (b) 1×10^5 N (c) 0.5×10^5 N (d) 0.25×10^5 N

29. We have two wires W_1 and W_2. Both are made of same material and have the same length. The radius of cross-section W_2 is twice that of W_1. Same load is suspended from both of them. If the strain in W_1 be 4, then that in W_2 will be:

(a) 1 (b) 2 (c) 4 (d) 8

30. A nylon rope 3 cm in diameter has a breaking strength of 1.5×10^5 N. The breaking strength of a similar rope 1.5 cm in diameter is:

(a) 0.75×10^{-5} N (b) 0.375×10^5 N (c) 3×10^5 N (d) 6×10^5 N

31. Three identical rods, each of length x, are joined to form a rigid equilateral triangle. Its radius of gyration about an axis passing through a corner and perpendicular to the triangle is

(a) $\frac{x}{\sqrt{3}}$ (b) $\frac{x}{2}$ (c) $\sqrt{\frac{3}{2}}x$ (d) $\frac{x}{\sqrt{2}}$

32. Moment of inertia of ring about its diameter is I. Then, moment of inertia about an axis passing through centre perpendicular to its plane is

(a) 2I (b) $\frac{I}{2}$ (c) $\frac{3}{2}I$ (d) I

33. The moment of inertia of a circular ring of mass 1 kg about an axis passing through its centre and perpendicular to its plane is 4 kg-m^2. The diameter of the ring is

(a) 2 m (b) 4 m (c) 5 m (d) 6 m

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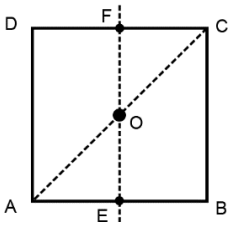
34. The moment of inertia about an axis of a body which is rotating with angular velocity 1 $rads^{-1}$ is numerically equal to

(a) One-fourth of its rotational kinetic energy (b) Half of the rotational kinetic energy
(c) Rotational kinetic energy (d) Twice the rotational kinetic energy

35. The moment of inertia of a circular disc of radius 2 m and mass 2 kg, about an axis passing through its centre of mass is 2 kg-m^2. Its moment of inertia about an axis parallel to this axis and passing through its edge (in km-m^2) is

(a) 10 (b) 8 (c) 6 (d) 4

36. For the given uniform square lamina ABCD, whose centre is O

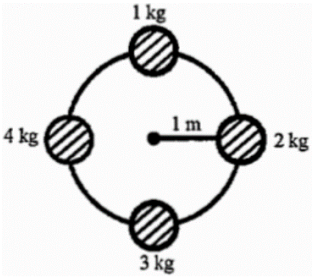


(a) $\sqrt{2}I_{AC} = I_{EF}$ (b) $I_{AD} = 4I_{EF}$ (c) $I_{AC} = I_{EF}$ (d) $I_{AC} = \sqrt{2}I_{EF}$

37. Two rings of radius R and nR made up of same material have the ratio of moment of inertia about an axis passing through centre is 1 : 8. The value of n is

(a) 2 (b) $2\sqrt{2}$ (c) 4 (d) $\frac{1}{2}$

38. Four balls each of radius 10 cm and mass 1 kg, 2 kg, 3 kg and 4 kg are attached to the periphery of massless plate of radius 1 m. What is moment of inertia of the system about the centre of plate?



(a) 12.04 kg-m^2 (b) 10.04 kg-m^2 (c) 11.50 kg-m^2 (d) 5.04 kg-m^2

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39. Two solid spheres (A and B) are made of metals of different densities ρ_A and ρ_B respectively. If their masses are equal, the ratio of their moments of inertia (I_B/I_A) about their respective diameters is

(a) $\left(\frac{\rho_B}{\rho_A}\right)^{2/3}$ (b) $\left(\frac{\rho_A}{\rho_B}\right)^{2/3}$ (c) $\frac{\rho_A}{\rho_B}$ (d) $\frac{\rho_B}{\rho_A}$

40. The moment of inertia of a thin rod of mass M and length L, about an axis perpendicular to the rod at a distance $\frac{L}{4}$ from one end is

(a) $\frac{ML^2}{6}$ (b) $\frac{ML^2}{12}$ (c) $\frac{7ML^2}{24}$ (d) $\frac{7ML^2}{48}$

41. The interference pattern is obtained with two coherent light sources of intensity ratio n. In the interference pattern, the ratio $\frac{I_{max} - I_{min}}{I_{max} + I_{min}}$ will be

(a) $\frac{\sqrt{n}}{n+1}$ (b) $\frac{2\sqrt{n}}{n+1}$ (c) $\frac{\sqrt{n}}{(n+1)^2}$ (d) $\frac{2\sqrt{n}}{(n+1)^2}$

42. Ratio of intensities of two waves are given by 4 : 1. Then ratio of the amplitudes of the two waves is

(a) 2 : 1 (b) 1 : 2 (c) 4 : 1 (d) 1 : 4

43. Interference is possible in

(a) light waves only (b) sound waves only

(c) both light and sound waves (d) neither light nor sound waves

44. In Young's double slit experiment, if the separation between coherent sources is halved and the distance of the screen from the coherent sources is doubles, then the fringe width becomes

(a) double (b) half (c) four times (d) one-fourth

45. In a double slit experiment, when light of wavelength 400 nm was used, the angular width of the first minima formed on a screen placed 1 m away, was found to be 0.2°. What will be the angular width of the first minima, if the entire experimental apparatus is immersed in water? (μ_{water} = 4/3)

(a) 0.1° (b) 0.266° (c) 0.15° (d) 0.05°

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46. In Young's double slit experiment if there is no initial phase difference between the light from the two slits, a point on the screen corresponding to the fifth minimum has path difference.

(a) $5\frac{\lambda}{2}$ (b) $10\frac{\lambda}{2}$ (c) $9\frac{\lambda}{2}$ (d) $11\frac{\lambda}{2}$

47. In Young's double slit experiment that separation d between the slits is 2 mm, the wavelength λ of the light used is 5896 Å and distance D between the screen and slits is 100 cm. It is found that the angular width of the fringes is 0.20°. To increase the fringe angular width to 0.21° (with same λ and D) the separation between the slits needs to be changed to

(a) 1.8 mm (b) 1.9 mm (c) 2.1 mm (d) 1.7 mm

48. Young's double slit experiment is first performed in air and then in a medium other than air. It is found that 8^{th} bright fringe in the medium lies where 5^{th} dark fringe lies in air. The refractive index of the medium is nearly

(a) 1.59 (b) 1.69 (c) 1.78 (d) 1.25

49. The intensity at the maximum in a Young's double slit experiment is I_0. Distance between two slits is $d = 5\lambda$, where λ is the wavelength of light used in the experiment. What will be the intensity in front of one of the slits on the screen placed at a distance $D = 10d$?

(a) $\frac{3}{4}I_0$ (b) $\frac{I_0}{2}$ (c) I_0 (d) $\frac{I_0}{4}$

50. Two slits in Young's experiment have widths in the ratio 1 : 25. The ratio of intensity at the maxima and minima in the interference pattern, $\frac{I_{max}}{I_{min}}$ is

(a) $\frac{49}{121}$ (b) $\frac{4}{9}$ (c) $\frac{9}{4}$ (d) $\frac{121}{49}$

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ARJUNA BATCH
CHEMISTRY : REVISION TEST 2 (SET B)
Topics: Atomic Structure, Gaseous States and Chemical Equilibrium

51. Brackett series are produced when the electrons from the outer orbits jump to

(a) 2nd orbit (b) 3rd orbit (c) 4th orbit (d) 5th orbit

52. The maximum number of atomic orbitals associated with a principal quantum number 5 is

(a) 9 (b) 12 (c) 16 (d) 25

53. Which of the following species is isoelectronic with CO?

(a) HF (b) N_2 (c) N_2^+ (d) O_2^-

54. Few electrons have following quantum numbers,

(i) n = 4, l = 1 (ii) n = 4, l = 0 (iii) n = 3, l = 2 (iv) n = 3, l = 1

Arrange them in the order of increasing energy from lowest to highest.

(a) (iv) < (ii) < (iii) < (i) (b) (ii) < (iv) < (i) < (iii)

(c) (i) < (iii) < (ii) < (iv) (d) (iii) < (i) < (iv) < (ii)

55. Be^{2+} is isoelectronic with which of the following ions?

(a) H^+ (b) Li^+ (c) Na^+ (d) Mg^{2+}

56. Kinetic energy of molecules is highest in

(a) Gases (b) Solids (c) Liquids (d) Solutions

57. What is the dominant intermolecular force or bond that must be overcome in converting liquid CH_3OH to gas?

(a) Dipole-dipole interaction (b) Covalent bonds

(c) London dispersion forces (d) Hydrogen bonding

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58. Which of the following exhibits the weakest intermolecular forces?

(a) NH_3 (b) HCl (c) He (d) H_2O

59. The temperature at which Celsius and Fahrenheit scales give the same reading is

(a) 0° C (b) 32° F (c) – 40° C (d) 40° C

60. When gases are heated from 20° to 40° C at constant pressure, their volumes

(a) increase by the same magnitude (b) become double

(c) increase in the ratio of their molecular masses (d) increase but to different extent

61. Maximum number of electrons present in N shell is

(a) 18 (b) 32 (c) 2 (d) 8

62. Neon (Z = 10) consists of

(a) 9 Electrons (b) 12 Electrons (c) 5 Electrons (d) 10 Electrons

63. In potassium the order of energy level is

(a) 3s, 3d (b) 3p, 4s (c) 4s, 4p (d) 4s, 3d

64. The Heisenberg uncertainty principle can be applied to

(a) Protons only (b) Electrons only

(c) Neutrons only (d) All material objects in motion

65. Electronic configuration of H^- is

(a) $1s^0$ (b) $1s^1$ (c) $1s^2$ (d) $1s^1, 2s^1$

66. The correct ground state electronic configuration of Cr atom is

(a) $[Ar]3d^5 4s^1$ (b) $3d^4 4s^2$ (c) $3d^6 4s^0$ (d) $4d^5 5s^1$

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67. The element with Z = 20 is

(a) an alkali metal (b) an alkaline earth metal

(c) a halogen (d) an inert gas

68. The number of electrons shared by each atom of nitrogen in nitrogen molecule is

(a) 2 (b) 6 (c) 3 (d) 4

69. The total number of electrons present in 8 g of methane is

(a) 4.02×10^{18} (b) 3.01×10^{24} (c) 3.01×10^{22} (d) 2.51×10^{24}

70. One of the basic assumptions of Bohr's theory is

(a) linear momentum is quantized

(b) angular momentum is quantized

(c) electrons do not feel nuclear attractions in stationary orbits

(d) stationary orbits have no position momentum uncertainty

71. Which of the following expression at constant pressure represents Charle's law.

(a) $V \propto \frac{1}{T}$ (b) $V \propto \frac{1}{T^2}$ (c) $V \propto T$ (d) $V \propto d$

72. 4.4 g of a gas at STP occupies a volume of 2.24 L, the gas can be

(a) O_2 (b) CO (c) NO_2 (d) CO_2

73. Real gases show deviations from ideal behaviour when

(a) temperature is low and pressure is high (b) temperature is high and pressure is low

(c) both temperature and pressure are low (d) both temperature and pressure are high

74. Containers A and B have same gases. Pressure, volume and temperature of A are all twice as that B, then the ratio of number of molecules A and B are

(a) 1 : 2 (b) 2 : 1 (c) 1 : 4 (d) 4 : 1

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75. The rate at which a substance reacts, depends on its:

(a) active mass (b) molecular mass (c) equivalent mass (d) total volume

76. Equilibrium constant for the reaction, $2NO_{(g)} + Cl_{2(g)} \rightleftharpoons 2NOCl_{(g)}$, is correctly given by the expression:

(a) $K = \frac{[NOCl]^2}{[NO]^2[Cl_2]}$ (b) $K = \frac{[2NOCl]}{[2NO][Cl_2]}$ (c) $K = \frac{[NO]^2 + [Cl_2]}{[NOCl]}$ (d) $K = \frac{[NO]^2[Cl_2]}{[NOCl]^2}$

77. The equilibrium constants of the reactions,

$SO_{2(g)} + \frac{1}{2}O_{2(g)} \rightleftharpoons SO_{3(g)}$

and $2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$

are K_1 and K_2 respectively. The relationship between K_1 and K_2 is:

(a) $K_1 = K_2$ (b) $K_2^2 = K_1$ (c) $K_1^2 = K_2$ (d) $K_2 = \sqrt{K_1}$

78. Consider the following equilibrium

$SO_{2(g)} + \frac{1}{2}O_{2(g)} \underset{}{\overset{K_1}{\rightleftharpoons}} SO_{3(g)}$; $2SO_{3(g)} \underset{}{\overset{K_2}{\rightleftharpoons}} 2SO_{2(g)} + O_{2(g)}$

What is the relation between K_1 and K_2?

(a) $K_1 = \frac{1}{K_2}$ (b) $K_1 = \frac{1}{\sqrt{K_2}}$ (c) $K_1 = K_2$ (d) $K_1 = \frac{1}{K_2^2}$

79. For a system, $A + 2B \rightleftharpoons C$, the equilibrium concentrations are [A] = 0.06, [B] = 0.12 and [C] = 0.216. The K_C for the relation is:

(a) 125 (b) 415 (c) 4×10^{-3} (d) 250

80. A reversible reaction is one which

(a) proceeds in one direction (b) proceeds in both directions

(c) proceeds spontaneously (d) all the statements are wrong

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81. An example of reversible reaction is:

(a) $Pb(NO_3)_2 + 2NaI = PbI_2 + 2NaNO_3$ (b) $AgNO_3 + HCl = AgCl + HNO_3$

(c) $2Na + 2H_2O = 2NaOH + H_2$ (d) $KNO_3 + NaCl = KCl + NaNO_3$

82. Which one of the following is not a reversible reaction?

(a) $2HI_{(g)} = H_{2(g)} + I_{2(g)}$ (b) $PCl_{5(g)} = PCl_{3(g)} + Cl_{2(g)}$

(c) $2KClO_{3(s)} = 2KCl_{(s)} + 3O_{2(g)}$ (d) $CaCO_{3(s)} = CaO_{(s)} + CO_{2(g)}$

83. Active mass is defined as:

(a) number of g equivalent per unit volume (b) number of g mol per litre

(c) amount of substance in gram per unit volume (d) number of g mole in 100 litre

84. 8.50 g of NH_3 is present in 250 mL volume. Its active mass is :

(a) 1.0 ML^{-1} (b) 0.5 ML^{-1} (c) 1.5 ML^{-1} (d) 2.0 ML^{-1}

85. A chemical reaction, $A \rightleftharpoons B$, is said to be in equilibrium when:

(a) rate of forward reaction is equal to rate of backward reaction

(b) conversion of A to B is only 50% complete

(c) complete conversion of A to B has taken place

(d) only 25% conversion of A to B has taken place

86. The reaction between barium chloride and sodium sulphate goes to completion because

(a) barium sulphate is almost insoluble (b) the solubility of barium chloride decreases

(c) lattice energy of barium sulphate is very high (d) the reaction is irreversible in nature

87. For the reaction, $A + 2B \rightleftharpoons C$, the expression for equilibrium constant is:

(a) $\frac{[A][B]^2}{[C]}$ (b) $\frac{[A][B]}{[C]}$ (c) $\frac{[C]}{[A][B]^2}$ (d) $\frac{[C]}{[2B][A]}$

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88. Equilibrium constant for the reaction, $H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$, is correctly given by the expression:

(a) $K_C = \frac{[H_2][I_2]}{[HI]}$ (b) $K_C = \frac{[HI]^2}{[H_2][I_2]}$ (c) $K_C = \frac{[HI]}{[H_2][I_2]}$ (d) $K_C = \frac{[2HI]}{[H_2][I_2]}$

89. For the system, $3A + 2B \rightleftharpoons C$ the expression for equilibrium constant is:

(a) $\frac{[A]^3[B]^2}{[C]}$ (b) $\frac{[C]}{[A]^2[B]^2}$ (c) $\frac{[A]^2[B]^3}{[C]}$ (d) $\frac{[C]}{[A][B]}$

90. For the reaction, $2NO_{2(g)} \rightleftharpoons 2NO_{(g)} + O_{2(g)}$, $K_C = 1.8 \times 10^{-6}$ at 185° C, the value of lK_C for the reaction, $NO_{(g)} \rightleftharpoons NO_{(g)} + 1/2O_{2(g)}$, at the same temperature is

(a) 1.34×10^{-3} (b) 1.8×10^{-6} (c) 0.9×10^{-3} (d) 1.8×10^{6}

91. Dalton's law of partial pressures will not hold good for which of the following?

(a) $H_2 + O_2 + CO_2$ (b) $N_2 + HBr + Cl_2$ (c) $Cl_2 + NH_3 + HBr$ (d) $NH_3 + O_2 + Cl_2$

92. Which of the following gas will have highest rate of diffusion?

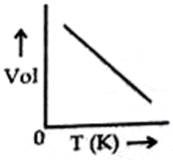
(a) NH_3 (b) N_2 (c) CO_2 (d) O_2

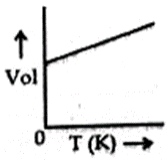
93. Graph between P and V at constant temperature is

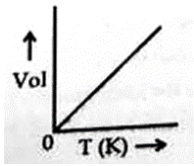
(a) straight (b) curved increasing

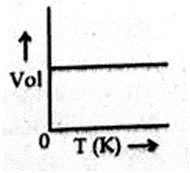
(c) straight line with slope (d) parabolic curve decreasing

94. The correct representation of Charles's law is given

(a) 

(b) 

(c) 

(d) 

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95. Which of the following shows explicitly the relationship between Boyle's law and Charles's law?

(a) $\frac{P_1}{P_2} = \frac{T_1}{T_2}$ (b) $PV = K$ (c) $\frac{P_2}{P_1} = \frac{V_1}{V_2}$ (d) $\frac{V_2}{V_1} = \frac{P_1}{P_2} \times \frac{T_2}{T_1}$

96. If the absolute temperature of gas is doubled and the pressure is reduced to one-half, the volume of the gas will

(a) Remain unchanged (b) Be doubled

(c) Increase four-fold (d) Be reduced to $1/4^{th}$

97. There is 10 litre of a gas at STP. Which of the following new conditions keep the volume constant?

(a) 273 K and 2 atm pressure (b) 273° C and 2 atm pressure

(c) 546° C and 0.5 atm pressure (d) 0° C and 0.0 atm pressure

98. 16 g oxygen and 3 g of hydrogen are mixed and kept at 760 mm pressure and 0° C. The total volume occupied by the mixture will be nearly

(a) 22.4 L (b) 33.6 L (c) 448 L (d) 44800 mL

99. At constant temperature, for a given mass of an ideal gas

(a) The ratio of pressure and volume always remains constant

(b) Volume always remains constant

(c) Pressure always remains constant

(d) The product of pressure and volume always remains constant

100. At constant pressure, the volume of fixed mass of an ideal gas is directly proportional toa

(a) Absolute temperature (b) Degree centigrade

(c) Degree Fahrenheit (d) None

Space for Rough Work

विद्या ददाति विनयम्
Knowledge is Discipline
BJNP
Learning with the Speed of Mumbai and the Tradition of Kota

Max Marks: 100 **Date: 13.11.2022**

ARJUNA BATCH
PHYSICS : REVISION TEST-2 (SET B) ANSWER KEY
Topic: Wave Optics + Rotational Motion + Elasticity

1.	(a)	2.	(c)	3.	(c)	4.	(b)	5.	(b)
6.	(d)	7.	(b)	8.	(d)	9.	(c)	10.	(a)
11.	(a)	12.	(b)	13.	(a)	14.	(b)	15.	(a)
16.	(a)	17.	(b)	18.	(c)	19.	(d)	20.	(b)
21.	(b)	22.	(d)	23.	(b)	24.	(b)	25.	(c)
26.	(b)	27.	(a)	28.	(c)	29.	(a)	30.	(b)
31.	(a)	32.	(a)	33.	(b)	34.	(d)	35.	(a)
36.	(b)	37.	(a)	38.	(b)	39.	(a)	40.	(d)
41.	(b)	42.	(a)	43.	(c)	44.	(c)	45.	(c)
46.	(c)	47.	(b)	48.	(c)	49.	(b)	50.	(c)

CHEMISTRY : REVISION TEST-2 (SET B) ANSWER KEY
Topics: Atomic Structure, Gaseous States and Chemical Equilibrium

51.	(c)	52.	(d)	53.	(b)	54.	(a)	55.	(b)
56.	(a)	57.	(d)	58.	(c)	59.	(c)	60.	(d)
61.	(b)	62.	(d)	63.	(d)	64.	(d)	65.	(b)
66.	(a)	67.	(b)	68.	(b)	69.	(d)	70.	(b)
71.	(c)	72.	(d)	73.	(a)	74.	(a)	75.	(a)
76.	(a)	77.	(c)	78.	(b)	79.	(d)	80.	(b)
81.	(d)	82.	(c)	83.	(b)	84.	(d)	85.	(a)
86.	(d)	87.	(c)	88.	(b)	89.	(b)	90.	(a)
91.	(c)	92.	(a)	93.	(d)	94.	(b)	95.	(d)
96.	(c)	97.	(b)	98.	(d)	99.	(d)	100.	(a)