

MDCAT Chemistry Online Test

Sr	Questions	Answers Choice
1	The number of NaCl molecules in unit cell of its crystal is	A. 2 B. 4 C. 6 D. 8
2	The ratio of close packed atoms to tetrahedral holes in cubic close packing is	A. 1 : 1 B. 1 : 2 C. 1 : 3 D. 2 : 1
3	Potassium crystallizes with a	A. Orthogonal lattice B. Cubic lattice C. Triclinic D. Ortho rhombic lattice
4	How many kinds of space lattices are possible in a crystal?	A. 23 B. 7 C. 230 D. 14
5	In a crystal $a \neq b \neq c$, $\alpha = \gamma = 90^\circ$ and $\beta \neq 90^\circ$ it is	A. Monoclinic B. Rhombic C. Trigonal D. Tetragonal
6	Bragg's law is given by equation	A. $n\lambda = 2d \sin \theta$ B. $n\lambda = 2d \sin \theta$ C. $2n\lambda = d \sin \theta$ D. $n\lambda = \frac{1}{2} d \sin \theta$
7	In crystal structure of sodium chloride, the arrangement of Cl^- ions is	A. Fcc B. Both fcc and bcc C. Bcc D. None of these
8	Crystal can be classified in tobasic crystal habits	A. 7 B. 4 C. 14 D. 3
9	Ionic solids with defects, contain	A. Equal number of cation and anion vacancies B. Interstitial anions and anion vacancies C. Cation vacancies only D. Cation vacancies and interstitial cations
10	Which of the following is an example of body centred cube?	A. Magnesium B. Zinc C. Copper D. Sodium
11	The pure crystalline substance on being heated gradually first forms a turbid liquid at constant temperature and still at higher temperature turbidity completely disappears. The behaviour is a characteristic of substance forming	A. Allotropic crystal B. Liquid crystals C. Isomeric crystals D. Isomorphous crystals
12	The factor responsible for lower mercury level in a capillary tube is	A. High density B. Surface tension C. Liquid state D. Metallic Colour
13	Triple point of water is	A. 273 K B. 373 K C. 203 K D. 193 K
14	4.4 g of CO_2 contains how many litres of CO_2 at STP?	A. 2.4 litre B. 2.24 litre C. 44 litre D. 22.4 litre

What is the pressure of 0.5 mole of NH_3 at 27°C when its volume is 5 L in Van der Waals

A. 10.33 atm

15	What is the pressure of 2 mole of NH_3 at 27°C when its volume is 5 lit.in van der Waals equation?($a = 0.17, b = 0.03711$)	B. 9.333 atm C. 9.74 atm D. 9.2 atm
16	The ratio of most probable velocity to that of average velocity is	A. $\pi/2$ B. $2/\pi$ C. $\sqrt{\pi}/2$
17	Hydrogen diffuses six times faster than gas A. The molar mass of gas A is	A. 72 B. 6 C. 24 D. 36
18	To which of the following mixtures Dalton's law of partial pressures is not applicable?	A. CO and CO_2 B. CO_2 and N_2 C. CH_4 and C_2H_6 D. HCl and NH_3
19	Which of the following contains maximum number of molecules?	A. 100 cc of CO_2 at STP B. 150 cc of N_2 at STP C. 50 cc of SO_2 at STP D. 200 cc of NH_3 at STP
20	In van der Waal's equation of state of the gas law, the constant 'b' is measure of	A. Intermolecular repulsions B. Intermolecular collisions per unit volume C. Volume occupied by the molecules D. Intermolecular attraction
21	Molar volume of CO_2 is maximum at	A. NTP B. 0°C and 2.0 atm C. 127°C and 1 atm D. 273°C and 2.0 atm
22	The rate of diffusion of a gas is proportional to	A. P/\sqrt{d} B. $\sqrt{p/d}$ C. P/d D. $\sqrt{P/d}$
23	The kinetic energy of 4 moles of nitrogen gas at 127°C is? cal. ($R = 2 \text{ cal mol}^{-1} \text{ K}^{-1}$)	A. 4400 B. 3200 C. 4800 D. 1524
24	Which of the following statement is not true?	A. The pressure of a gas is due to collision of the gas molecules with the walls of the container. B. The molecular velocity of any gas is proportional to the square root of the absolute temperature. C. The rate of diffusion of a gas is directly proportional to the density of the gas at constant pressure. D. Kinetic energy of an ideal gas is directly proportional to the absolute temperature.
25	Absolute temperature is the temperature at which	A. All molecular motion ceases B. volume becomes zero C. Mass becomes zero D. None of these
26	Kinetic energy of one mole of an ideal gas at 300 K in kJ is	A. 34.8 B. 3.48 C. 3.74 D. 348
27	According to the kinetic theory of gases, in an ideal gas, between two successive collisions a gas molecule travels	A. In a circular path B. In a wavy path C. In a straight line path D. With an accelerated velocity
28	What is distilled first?	A. Liquid CO_2 B. Liquid N_2 C. Liquid O_2 D. Liquid H_2
29	When the temperature is raised, the viscosity of the liquid decreases. This is because of	A. Decreased volume of the solution B. Increase in temperature increases the average kinetic energy of molecules which overcome the attractive force between them C. Decreased covalent and hydrogen bond forces D. Increased attraction between the molecules

30	If the four tubes of a car are filled to the same pressure with N ₂ , O ₂ , H ₂ and helium separately, then which one will be filled first.	A. N ₂ B. O ₂ C. H ₂ D. He
31	Air at sea level is dense. This is a practical application of	A. Boyle's law B. Charles's law C. Avogadro's law D. Dalton's law
32	Equal volumes of gases at the same temperature and pressure contain equal number of particles. This statement is direct consequence of	A. Perfect gas law B. Partial law of volumes C. Charles's law D. Ideal gas equation
33	For an ideal gas, number of moles per litre in terms of its pressure P, gas constant R and temperature T is	A. PT/R B. PRT C. P/RT D. RT/P
34	The temperature below which a gas does not exist is called its	A. Inversion temperature B. Critical temperature C. Neutral temperature D. Curie point
35	The relationship which describes the variation of vapour pressure with temperature is called	A. Hess's law B. Arrhenius equation C. Kirchhoff's law D. Clausius-Clapeyron equation
36	At STP, a container has 1 mole of Ar, 2 moles of CO ₂ , 3 moles of O ₂ and 4 moles of N ₂ . Without changing the total pressure if one mole of O ₂ is removed, the partial pressure of O ₂	A. Is changed by about 26% B. Is halved C. Is unchanged D. Change by 33%
37	Two moles of an ideal gas at 1 atm are compressed to 2 atm at 273 K. The enthalpy change for the process is	A. 2 litre atm B. 1 litre atm C. Zero D. 3 litre atm
38	The volume of 2.8 g of carbon monoxide at 27°C and 0.821 atm pressure is (R = 0.0821 lit.atm.Mol ⁻¹ K ⁻¹)	A. 30 L B. 3 L C. 0.3 L D. 1.5 L
39	If the volume of 2 moles of an ideal gas at 540 K is 44.8 litre then its pressure will be	A. 1 atmosphere B. 2 atmosphere C. 3 atmosphere D. 4 atmosphere
40	The compressibility factor of an ideal gas is	A. 0 B. 1 C. 2 D. 4
41	The average kinetic energy of an ideal gas per molecule in SI units at 25°C will be	A. 6.17×10^{-21} KJ B. 6.17×10^{-21} J C. 6.17×10^{-20} J D. 7.16×10^{-20} J
42	The densities of two gases are in the ratio of 1 : 16. The ratio of their rates of diffusion is	A. 16 : 1 B. 4 : 1 C. 1 : 4 D. 1 : 16
43	An ideal gas obeying kinetic gas equation can be liquefied if	A. Its temperature is more than critical temperature B. Its pressure is more than critical pressure C. Its pressure is more than critical pressure but temperature is less than critical temperature D. It cannot be liquefied at any value of P and T
44	Which of the following statements is false?	A. Avogadro number = 6.02×10^{23} B. The relationship between average velocity (v) and root mean square velocity (u) is $v = 0.9213 u$ C. The mean kinetic energy of an ideal gas is independent of the pressure of the gas D. The root mean square velocity of the gas can be calculated by the formula $(3RT/M)^{1/2}$
45	The temperature of the gas is raised from 27°C to 927°C the root mean square velocity is	A. $\sqrt{927/27}$ times the earlier value B. Same as before

45	The temperature of the gas is raised from 27 °C to 327 °C the root mean square velocity is	C. Halved D. Doubled
46	The number of moles of H ₂ in 0.224 L of hydrogen gas at STP (273 K, 1 atm) assuming ideal gas behaviour is	A. 1 B. 0.1 C. 0.01 D. 0.001
47	The density of methane at 2.0 atmosphere pressure at 27°C is	A. 0.13 gL ⁻¹ B. 0.26 gL ⁻¹ C. 1.30 gL ⁻¹ D. 26.0 gL ⁻¹
48	If rate of diffusion of A is 5 times that of B, what will be the density ratio of A and B?	A. 1/25 B. 1/5 C. 25 D. 5
49	An ideal gas cannot be liquefied because	A. Its critical temperature is always above 0°C B. Its molecules are relatively small in size C. It solidifies before becoming a liquid D. Forces operative between its molecules are negligible.
50	The correct value of the gas constant R is close to	A. 0.082 litre-atm K ⁻¹ mol ⁻¹ B. 0.082 litre-atm ⁻¹ K mol C. 0.082 litre-atm K D. 0.082 litre-atm ⁻¹ K mol ⁻¹
51	A real gas most closely approaches the behaviour of an ideal gas at	A. 15 atm. and 200 K B. 1 atm. and 273 K C. 0.5 atm. and 500 K D. 15 tm, and 500 K
52	There is more deviation in the behaviour of a gas from the ideal gas equation PV = nRT	A. At high temperature and low pressure B. At low temperature and high pressure C. At high temperature and high pressure D. At low temperature and low pressure
53	In the equation PV = nRT which one cannot be numerically equal to R	A. 8.31 x 10 ⁷ erg ⁻¹ K ⁻¹ mol ⁻¹ B. 8.31 x 10 ⁷ dynes Cm K ⁻¹ mol ⁻¹ C. 8.31 JK ⁻¹ mol ⁻¹ D. 8.31 L atm K ⁻¹ mol ⁻¹
54	According to kinetic theory of gases there are	A. Intermolecular attractions B. Molecules which have considerable volume C. No intermolecular forces of attraction D. The velocity of molecules decreases for each collision.
55	The vapour density of a gas is 11.2. The volume occupied by 11.2 g of this gas at N.T.P is	A. 22.4 litres B. 11.2 litres C. 1 litre D. 2.24 litres
56	Wt. of 112 ml of oxygen at NTP on liquifaction would be	A. 0.32 g B. 0.64 g C. 0.16 g D. 0.96 g
57	The weight of 11.2 liters of CO ₂ at S.T.P would be	A. 88 g B. 44 g C. 32 g D. 22 g
58	The number of atoms in 0.004 g of magnesium is close to	A. 24 B. 2 x 10 ²⁰ C. 10 ²⁰ D. 6.02 x 10 ²³
		A. The number of molecules in one litre of gas B. The number of molecules in one gram of gas

59	One mole of a gas refers to	grams of gas C. The number of molecules contained in 12 grams of ¹² C isotope D. The number of molecules in 22.4 liters of a gas at S.T.P.
60	The relative rate of diffusion of a gas (molecular weight = 128) as compared to oxygen is	A. 2 times B. 1/4 C. 1/8 D. 1/2