**Date:27 -11-2023 Monthly Test - II**

**Day: Monday JEE Batch – I**

**Subject: Chemistry**

1. Liquefaction of gases can be achieved by

a) compressing as well as cooling

b) compressing the gas below critical temperature

c) Neither A nor B

d) Both A and B

2. The total pressure exerted by a mixture of 16g of and 2g of confined in a bulb of volume 1L at C is

a) 36.9 atm b) 47.8 atm c) 18.5 atm d) 25.1 atm

3. Two gas bulbs A and B are connected by a tube that has a stopcock. Bulb A has a volume of 100 mL and contains hydrogen. After opening the stopcock, gas moves from A to the evacuated bulb B, and the pressure falls down to 40% of its original value. The volume of B (in mL) must be

a) 75 b) 150 c) 200 d) 250

4. We take a gas and plot PV vs P, and we get a curve which is a straight line with a positive, finite slope. Which one of the following is true for this gas?

i. Van der Waal’s constant ‘a’ is negligible

ii. Van der Waal’s constant ‘b’ is negligible

iii. Ideal gas equation is applicable

a) iii b) ii c) i d) I & ii

5. 2.69 g of a sample of was placed in a 1-litre flask and completely vaporised to a temperature of C . The pressure observed at this temperature was 1 atm. The possibility exists that some of may have dissociated according to the equation

What is the partial pressure of under these experimental conditions?

a) 0.087 atm b) 0.064 atm c) 0.88 atm d) 0.14 atm

6. The density of Phosphorus vapour at C and 760 mm Hg is 2.5 g/l. What is the molecular formula of phosphorus? Atomic mass of phosphorus is 31g / mol.

a) b) c) d)

7. The most probable speed of an ideal gas at at C is 0.3 . The rms speed at C would be

a) 0.3m/s b) 0.6m/s c) 0.9m/s d) 1.2m/s

8. An open vessel at is heated until of the air in it has been expelled. Assuming volume of the vessel to be constant, the temperature to which the vessel has been heated is

a) C b) C c) C d) C

9. The compressibility factor for the definite amount of van der Waal's gas at C and 100 atm is found to be 0.5 . Assuming the volume of gas molecules negligible, the van der Waal's constant for a gas is

a) 1.256 atm b) 0.256 atm

c) 2.256 atm d) 0.0256 atm

10. Equation for Boyle's Law is PV = k, where P is pressure and V is colume. Which of the following is the incorrect expression for Bolye's Law?

a) - b)

c) d) =