



Three bulbs are filled with CH_4 , CO_2 and Ne as shown in the picture. The bulbs are connected through pipes of zero volume. When the stopcocks are opened and the temperature is kept constant throughout, the pressure of the system is found to be _____ atm. (Nearest integer).

[2023 (08 Apr Shift 1)]

2. Arrange the following gases in increasing order of van der Waals constant 'a'

- (A) Ar
- (B) CH_4
- (C) H_2O
- (D) C_6H_6

Choose the correct option from the following.

[2023 (08 Apr Shift 2)]

- (1) D, C, B and A
- (2) B, C, D and A
- (3) C, D, B and A
- (4) A, B, C and D

3. At constant temperature, a gas is at a pressure of 940.3 mm Hg. The pressure at which its volume decreases by 40% is _____ mm Hg. (Nearest integer)

[2023 (10 Apr Shift 1)]

4. At 600 K, the root mean square (rms) speed of gas X (molar mass = 40) is equal to the most probable speed of gas Y at 90 K. The molar mass of the gas Y is _____ g mol^{-1} . (Nearest integer)

[2023 (12 Apr Shift 1)]

5. A certain quantity of real gas occupies a volume of 0.15 dm^3 at 100 atm and 500 K when its compressibility factor is 1.07. Its volume at 300 atm and 300 K (When its compressibility factor is 1.4) is _____ $\times 10^{-4} \text{ dm}^3$ (Nearest integer)

[2023 (13 Apr Shift 1)]

