Date Planned : __ / __ / __	Daily Tutorial Sheet-14	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-3	Exact Duration :_____

153. A jar contains a gas and a few drops of water. The pressure in the jar is 830 mm of Hg. The temperature of the jar is reduced by 1%. The vapour pressure of water at two temperatures are 30 and 25 mm of Hg. Calculate the new pressure in jar.

(A) 792 mm of Hg **(B)** 817 mm of Hg **(C)** 800 mm of Hg **(D)** 840 mm of Hg

154. Which is/are correct for real gases ?

(A) $\lim\limits_{P\to 0}(PV_m) =$ constant at constant high temperature

(B) $\lim\limits_{V_m\to 0}(PV_m) =$ constant at constant low temperature

(C) $\lim\limits_{P\to 0}\left(\frac{PV_m}{RT}\right) = 1$ at high temperature

(D) $\lim\limits_{V\to 0}\left(\frac{PV_m}{RT}\right) = R$

***155.** The incorrect statement is/are :

(A) On increasing pressure, u_{rms} increases

(B) On decreasing temperature, average kinetic energy decreases

(C) On expansion of a gas at above inversion temperature, cooling effect is observed

(D) The correct order of molecular velocities for a gas is $u_{rms} > u_{mp} > u_{average}$

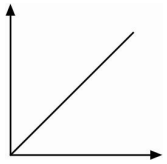
156. Match the items of columns I and II.

Column-I		Column-II	
(P)	Z for ideal gas behavior	**(1)**	3/8
(Q)	Z for real gas at low pressure	**(2)**	$\left(1+\frac{Pb}{RT}\right)$
(R)	Z for real gas at high pressure	**(3)**	1
(S)	Z for critical state	**(4)**	$\left(1-\frac{a}{RTV}\right)$

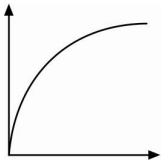
Codes :

	P	Q	R	S
(A)	1	2	4	3
(B)	3	4	2	1
(C)	2	1	4	3
(D)	1	2	3	4

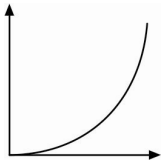
157. Graph for V vs. $\frac{1}{T}$ for ideal gas at constant P and n is plotted. Which of the following is correct?



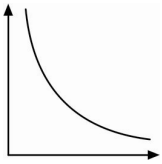
(A)



(B)



(C)



(D)

158. The density of steam at 100°C & 1 atm pressure is 0.5974 kg m^{-3}. What is compressibility factor of steam.

(A) 0.98 **(B)** 1 **(C)** 1.2 **(D)** 0.68