Q. **Which of the following statements is correct for spontaneous polymerization reaction:-**
A) $\Delta G < 0, \Delta H < 0, \Delta S < 0$
B) $\Delta G < 0, \Delta H > 0, \Delta S > 0$
C) $\Delta G > 0, \Delta H < 0, \Delta S > 0$
D) $\Delta G > 0, \Delta H > 0, \Delta S > 0$

Correct Answer – A

Q. **The compressibility factor for a van der Waal gas at hhigh pressure is:-**
A) $1 + RT/Pb$
B) $1 + Pb/RT$
C) $1 - Pb/RT$
D) 1

Correct Answer – B

Q. **Consider an electron moving in the first Bohr orbit of a He^{+i}ion with a velocity v_1. If it is allowed to move in the third Bohr orbit with a velocity v_3, then, indicate the correct $v_3:v_1$ ratio:-**
A) 3:1
B) 2:1
C) 1:3
D) 1:2

Correct Answer – C

Q. **At 25°, the iconic product of water is 10^{-14}. The free energy change for the selfionization of water in kCalmol^{-1} is close to:-**
A) 20.5
B) 14.0
C) 19.1
D) 25.3

Correct Answer – C

Q. **The correct acidity order of phenol (I), 4-hydroxybenzaldehyde (II) and 3-hydroxybenzaldehyde (III) is:-**
A) I<II<III
B) I<III<II
C) II<III<I
D) III<II<I

Correct Answer – B

Q. **Toluene reacts with mixed acid at 25° to product:-**
A) nearly equal amounts to 0 – and m - nitrotoulene
B) p-nitrotoulene
C) predominantly 0 – nitrotoulene and p- nitrotoulene
D) 2, 4, 6- trinitrotoulene (only)

Correct Answer - C