Q1: 24 Feb (Shift 1) - Single Correct

Which of the following are isostructural pairs?

(A) SO_4^{2-} and CrO_4^{2-}

(B) $SiCl_4$ and $TiCl_4$

(c) NH_3 and NO_3^-

(D) BCl_3 and $BrCl_3$

(1) A and *C* only

(2) A and B only

(3) B and C only

(4) C and D only

Q2: 24 Feb (Shift 2) - Single Correct

The correct shape and I-I-I bond angles respectively in I_3^- ion are :

(1) Trigonal planar; 120°

(2) Distorted trigonal planar; 135° and 90°

(3) Linear; 180°

(4) T-shaped; 180° and 90°

Q3: 25 Feb (Shift 1) - Single Correct

According to molecular orbital theory, the species among the following that does not exist is:

(1) He_2^-

(2) $He_2{}_2^+$

(3) O_2^{2-}

(4) Be_2

Q4: 25 Feb (Shift 2) - Single Correct

Which among the following species has unequal bond lengths ?

(1) XeF_4

(2) SiF_4

(3) BF_4^-

(4) SF_4

Q5: 26 Feb (Shift 1) - Single Correct

Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A : Dipole-dipole interactions are the only non-covalent interactions, resulting in hydrogen bond formation

Reason R : Fluorine is the most electronegative element and hydrogen bonds in HF are symmetrical In the light of the above statements, choose the most appropriate answer from the options given below :

(1) A is false but R is true

(2) Both A and R are true and R is the correct explanation of A

(3) A is true but R is false

(4) Both A and R are true and R is not the correct explanation of A

Q6: 26 Feb (Shift 2) - Single Correct

Match List-I with List-II.

List-I (Molecule)	**List-II (Bond order)**
(a) Ne_2	(i) 1
(b) N_2	(ii) 2
(c) F_2	(iii) 0
(d) O_2	(iv) 3

Choose the correct answer from the options given below:

(1) (a) – (iii), (b) – (iv), (c) – (i), (d) – (iii)

(2) (a) – (i), (b) – (ii), (c) – (iii), (d) – (iv)

(3) (a) – (ii), (b) – (i), (c) – (iv), (d) – (iii)

(4) $(a)-(iv),(b)-(iii),(c)-(ii),(d)-(i)$

Answer Key

Q1 (2) **Q2** (3) **Q3** (4) **Q4** (4)

Q5 (3) **Q6** (1)