

JEE MAIN CHEMICAL BONDING AND MOLECULAR STRUCTURE — LEWIS STRUCTURES, OCTET RULE AND COORDINATE BOND — PYQS

Max. Marks: 20

Questions: 5

Section A (MCQ) — 3 questions

- Q.1** The pairs among A = $[\text{SO}_3^{2-}, \text{CO}_3^{2-}]$, B = $[\text{O}_2^{2-}, \text{F}_2]$, C = $[\text{CN}^-, \text{CO}]$, D = $[\text{NH}_3, \text{H}_3\text{O}^+]$ and E = $[\text{MnO}_4^{2-}, \text{CrO}_4^{2-}]$ that do not have similar Lewis dot structure are

[JEE Main 2026 (Online) 6th April Morning Shift]

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

 Scan or tap for the
full solution
 

- Q.2** Given below are two statements :

Statement-I: The number of compounds among SO_2 , SO_3 , SF_4 , SF_6 and H_2S in which sulphur does not obey the Octet rule is 3.

Statement-II: Among $[\text{H}_2\text{O}, \text{ClF}_3, \text{SF}_4]$, $[\text{NH}_3, \text{BrF}_5, \text{SF}_4]$, $[\text{BrF}_5, \text{ClF}_3, \text{XeF}_4]$ and $[\text{XeF}_4, \text{ClF}_3, \text{H}_2\text{O}]$, the number of sets in which all the molecules have one lone pair of electrons on the central atom is 1.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 6th April Evening Shift]

- (1) Both Statement-I and Statement-II are true
(2) Both Statement-I and Statement-II are false
(3) Statement-I is true but Statement-II is false
(4) Statement-I is false but Statement-II is true

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- Q.3** Match the List - I with List - II

Classification of molecules based on octet rule		Example	
A.	Molecules obeying octet rule	I.	NO, NO_2
B.	Molecules with incomplete octet	II.	$\text{BCl}_3, \text{AlCl}_3$
C.	Molecules with incomplete octet with odd electron	III.	$\text{H}_2\text{SO}_4, \text{PCl}_5$
D.	Molecules with expanded octet	IV.	$\text{CCl}_4, \text{CO}_2$

Choose the correct answer from the options given below:

[JEE Main 2025 (Online) 23rd January Morning Shift]

- (1) A-IV, B-I, C-III, D-II
(2) A-II, B-IV, C-III, D-I
(3) A-IV, B-II, C-I, D-III
(4) A-III, B-II, C-I, D-IV

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Section B (Numerical) — 2 questions

- Q.4** According to Lewis theory, the total number of σ bond-pairs and lone pair of electrons around the central atom of XeO_6^{4-} ion is _____.

[JEE Main 2026 (Online) 4th April Morning Shift]

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- Q.5** Total number of non-bonded electrons present in NO_2^- ion based on Lewis theory is _____.

[JEE Main 2025 (Online) 29th January Evening Shift]

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ANSWER KEY

Section A (MCQ) — 3 questions

Ques.	1	2	3							
Ans.	2	4	3							

Section B (Numerical) — 2 questions

Ques.	4	5								
Ans.	6	12								