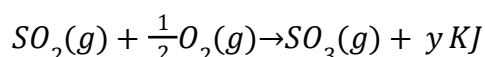
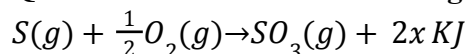


JEE-Main-24-01-2025 (Memory Based)**[EVENING SHIFT]****Chemistry**

Question: Consider the following reaction



Options:

- (a) $-(x + y)$
- (b) $-(2x + y)$
- (c) x/y
- (d) $y - 2x$

Answer: (d)

Question: The conditions and consequences that favour the $t_{2g}^3 e_g^1$ configuration in a metal complex are

Options:

- (a) Strong field ligand, High spin complex
- (b) Weak field ligand; High spin complex
- (c) Strong field ligand; Low spin complex
- (d) Weak field ligand; Low spin complex

Answer: (b)

Question: When ethane-1, 2-diammine is progressively added to aqueous solution of Nickel (II) chloride the sequences of colour change observed will be:

Options:

- (a) Pale Blue \rightarrow Blue \rightarrow Green \rightarrow Violet
- (b) Violet \rightarrow Blue \rightarrow Pale Blue \rightarrow Green
- (c) Pale Blue \rightarrow Blue \rightarrow Violet \rightarrow Green
- (d) Green \rightarrow Pale Blue \rightarrow Blue \rightarrow Violet

Answer: (d)

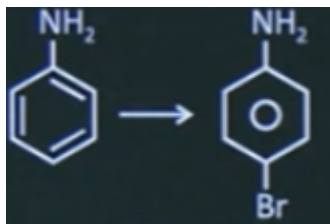
Question: S-I: The first ionisation energy of Pb is greater than that of Sn.

S-II: The first ionisation energy of Ge is greater than that of Si.

Options:

- (a) S-I and S-II both are correct
- (b) S-I is correct and S-II incorrect
- (c) S-I is incorrect and S-II correct
- (d) S-I and S-II both are incorrect

Answer: (b)



Question: Above conversion can be

done by using which reagents among the following

Options:

- (a) Fe/Br₂, H₂O(Δ), H₂SO₄
- (b) Ac₂O, H₂SO₄, Br₂, NaOH
- (c) Ac₂O, Fe/Br₂, H₂O/H⁺
- (d) Ac₂O, Br₂/Fe, NaOH

Answer: (c)

Question: Match the column and select the correct option.

Column-I (Ionic species)	Column-II (Spin only magnetic moment (BM))
A. Sc ³⁺	(P) 2.84
B. Ti ²⁺	(Q) 0
C. V ²⁺	(R) 5.92
D. Mn ²⁺	(S) 3.87

Options:

- (a) A-P, B-Q, C-R, D-S
- (b) A-R, B-S, C-P, D-Q
- (c) A-Q, B-P, C-S, D-R
- (d) A-Q, B-P, C-R, D-S

Answer: (c)

Question: In a compound containing 54.2% carbon, 9.2% of hydrogen and rest are oxygen. What is the molecular formula of compound, if molecular mass is 132 g/mol?

Options:

- (a) C₆H₁₂O₃
- (b) C₄H₁₂O₃
- (c) C₄H₁₂O₆
- (d) C₆H₁₃O₆

Answer: (a)

Question: Given below are two statements:

Statement-I: First Ionisation energy of Ge is greater than Si.

Statement-II: First Ionisation energy of Pb is greater than Sn In the light of the above statements, choose the most appropriate answer from the options given below:

Options:

- (a) Both Statement I and Statement II are incorrect

- (b) Statement I is correct but Statement II is incorrect
 (c) Both Statement I and Statement II are correct
 (d) Statement I is incorrect but Statement II is correct

Answer: (d)

Question: Arrange the following in order of decreasing wavelength.

- a: Microwave b: Ultraviolet
 c: Infrared d: X-rays

Options:

- (a) $a > b > c > d$
 (b) $d > c > b > a$
 (c) $a > c > b > d$
 (d) $c > a > b > d$

Answer: (c)

Question: Calculate the degree of unsaturation of Hydrocarbon having Molar mass 80 g/mol containing 90% Carbon.

Options:

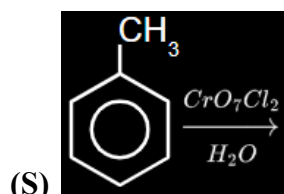
- (a) 3
 (b) 2
 (c) 4
 (d) 6

Answer: (a)

Question: Match the following

List-I (Name)	List-II (Reaction)
A. Gettermann reaction	(P) $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{Cl} \xrightarrow[\text{BaSO}_4]{\text{H}_2/\text{Pd}}$
B. Stephan's reaction	(Q) $\text{C}_6\text{H}_5\text{Cl} \xrightarrow[\text{HCl}]{\text{CO}}$
C. Rosenmund reaction	(R) $\text{R}-\text{C}-\text{N} \xrightarrow[\text{HCl}]{\text{SnCl}_2}$

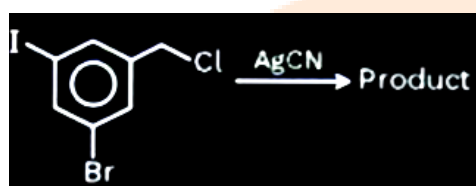
D. Etard Reaction



Options:

- (a) A-Q, B-R, C-P, D-S
 (b) A-R, B-P, C-Q, D-S
 (c) A-Q, B-P, C-R, D-S
 (d) A-Q, B-R, C-S, D-Q

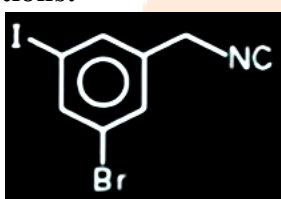
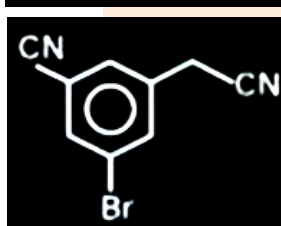
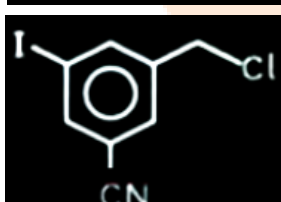
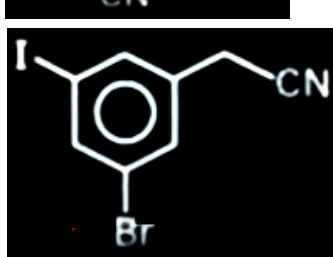
Answer: (a)



Question:

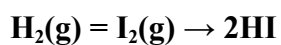
What will be the final product?

Options:

- (a) 
- (b) 
- (c) 
- (d) 

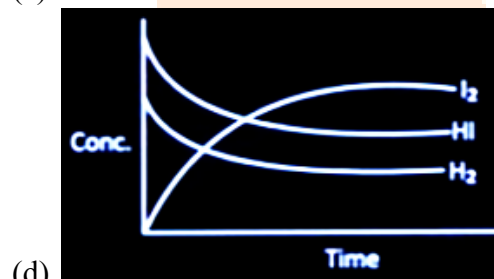
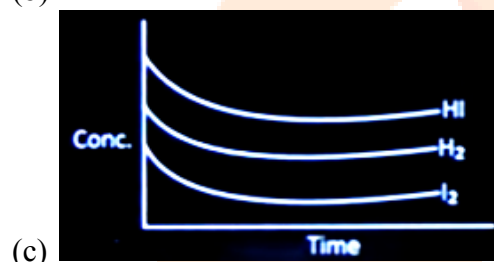
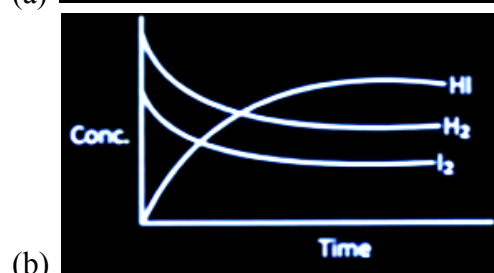
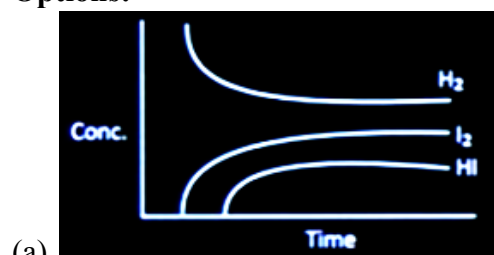
Answer: (d)

Question: Consider the following gaseous reaction



The above reaction is started with 'a' moles of H_2 and 'b' moles I_2 in a closed container at a certain temperature T(K) till the equilibrium is established. Which one of the following plots correctly describes the progress of reaction?

Options:



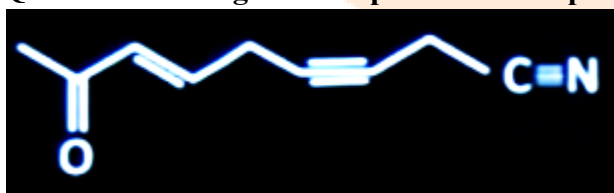
Answer: (b)

Question: Match the following nitrogenous bases present in List-I with their structures present in List-II

	List-I		List-II
A.	Thymine	(i)	
B.	Adenine	(ii)	
C.	Cytosine	(iii)	
D.	Uracil	(iv)	

Options:

- (a) A-i, B-ii, C-iii, D-iv
 (b) A-ii, B-i, C-iv, D-iii
 (c) A-ii, B-i, C-iii, D-iv
 (d) A-iii, B-iv, C-i, D-ii

Answer: (b)**Question: In the given compound no. of Sp and Sp^2 hybridised carbon are****Options:**

- (a) 4 and 5
 (b) 4 and 6
 (c) 3 and 6
 (d) 3 and 3

Answer: (d)**Question: The successive ionisation energy(I.E.) of an element 'X' is given** $I.E_1$ $I.E_2$ $I.E_3$ $I.E_4$ $I.E_5$

X → 500 600 2000 2200 2600

Find out the group number of element X.

Options:

- (a) Group → 3
- (b) Group → 14
- (c) Group → 2
- (d) Group → 13

Answer: (c)

Question: Consider the following statements:

S-I: Oxygen-oxygen bond length in O_3 is greater than O_2 .

S-II: O — O bond order in O_3 is 1.5 and O — O bond order in O_2 is 2.

Options:

- (a) Both S-I and S-II are correct
- (b) Both S-I and S-II are incorrect
- (c) S-I is correct, S-II is incorrect
- (d) S-I is incorrect, S-II is correct

Answer: (d)

Question: In the Carius method of estimation of halogen, 0.25 g of an organic compound gave 0.16 g of AgBr. What is the percentage of bromine in the compound (Given molar mass of Ag = 108, Br = 80)

Answer: (27.23)

Question: Let k_1 , k_2 and k_3 be the rate constant of reaction and $k = \sqrt{\frac{k_1 k_3}{k_2}}$. Then find the activation energy of the overall reaction.

(Given: $E_{a_1} = 10 \text{ kJ/mol}$, $E_{a_2} = 30 \text{ kJ/mol}$, $E_{a_3} = 60 \text{ kJ/mol}$)

Answer: (20)

Question: How many stereoisomers are possible for 5-phenylpent-4-en-2-ol?

Answer: (4)

Solution:

