

Question ID	12313
Question Type	MCQ
Question	A solution is formed by mixing two components A and B at 298 K. If n_A moles of A and n_B moles of B are used in making a solution, the vapour pressure of the solution can be expressed as: (Given : p_A° and p_B° are vapour pressure of pure components A and B, respectively.) $p_A^\circ + \left(p_B^\circ - p_A^\circ \right) \left(\frac{n_A}{n_A + n_B} \right)$ $p_A^\circ - \left(p_B^\circ - p_A^\circ \right) \left(\frac{n_A}{n_A + n_B} \right)$ $p_B^\circ + \left(p_A^\circ - p_B^\circ \right) \left(\frac{n_A}{n_A + n_B} \right)$ $p_B^\circ - \left(p_A^\circ - p_B^\circ \right) \left(\frac{n_A}{n_A + n_B} \right)$
Options	
A	1
B	2
C	3
D	4

Question ID	12316
Question Type	MCQ
Question	Which of the following represents a 10% (v/v) ethanol solution in water. 10 mL of ethanol dissolved in 90g of water. 10 mL of ethanol dissolved in water making total volume of solution 100 mL. 10 mL of ethanol dissolved in 100 mL of water. 10 g of ethanol dissolved in 100 mL of water.
Options	
A	1
B	2
C	3
D	4

Question ID	12320
Question Type	MCQ
	Liquid 'A' and liquid 'B' on mixing forms azeotropes. Which of the following properties are correct in relation to azeotropic mixture? - Azeotropic mixtures have same composition in liquid and vapour phase. - Azeotropic mixtures are separated by fractional distillation. - Solutions which at a specific concentration show large positive deviation from Raoult's Law, form minimum boiling azeotropes.

Question	D. Nitric acid and water is an example of minimum boiling azeotropes.		
	Choose the correct answer from the options given below:		
	1. A and C Only 2. A, B and C Only 3. B and C Only 4. A, C and D Only		
	Options		
	A	1	
B	2		
C	3		
D	4		

Question ID	12328		
Question Type	MCQ		
Question	Arrange the following cells in order of their decreasing EMF values (Given: $E^{\circ}_{\text{Cu}^{2+}/\text{Cu}} = 0.34 \text{ V}$ and $E^{\circ}_{\text{Zn}^{2+}/\text{Zn}} = - 0.76 \text{ V}$)		
	A. $\text{Zn(s)} \mid \text{Zn}^{2+}(0.1 \text{ M}) \parallel \text{Cu}^{2+}(0.01 \text{ M}) \mid \text{Cu(s)}$ B. $\text{Zn(s)} \mid \text{Zn}^{2+}(1 \text{ M}) \parallel \text{Cu}^{2+}(1 \text{ M}) \mid \text{Cu(s)}$ C. $\text{Zn(s)} \mid \text{Zn}^{2+}(0.01 \text{ M}) \parallel \text{Cu}^{2+}(0.1 \text{ M}) \mid \text{Cu(s)}$ D. $\text{Zn(s)} \mid \text{Zn}^{2+}(0.1 \text{ M}) \parallel \text{Cu}^{2+}(0.001 \text{ M}) \mid \text{Cu(s)}$		
	Choose the correct answer from the options given below:		
	1. C, B, D, A 2. B, A, D, C 3. C, B, A, D 4. D, C, B, A		
	Options		
A	1		
B	2		
C	3		
D	4		

Question ID	12348			
Question Type	MCQ			
Question	Match the LIST-I with LIST-II			
	LIST-I Reduction reaction		LIST-II Cells/Processes	
	A.	$\text{Cu}^{2+}(\text{aq}) + 2\text{e}^{-} \rightarrow \text{Cu}(\text{s})$	I.	Fuel Cell
	B.	$\text{O}_2(\text{g}) + 4\text{H}^{+}(\text{aq}) + 4\text{e}^{-} \rightarrow 2\text{H}_2\text{O}(\text{l})$	II.	Leclanche Cell
	C.	$\text{MnO}_2 + \text{NH}_4^{+} + \text{e}^{-} \rightarrow \text{MnO}(\text{OH}) + \text{NH}_3$	III.	Daniell Cell
	D.	$\text{O}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l}) + 4\text{e}^{-} \rightarrow 4\text{OH}^{-}(\text{aq})$	IV.	Corrosion
Choose the correct answer from the options given below:				
1. A-III, B-II, C-IV, D-I				
2. A-III, B-IV, C-II, D-I				
3. A-III, B-II, C-I, D-IV				
4. A-II, B-IV, C-III, D-I				
Options				
A	1			
B	2			
C	3			

D	4
Question ID	12351
Question Type	MCQ
Question	Which of the following factor does not contribute to conductivity of electrolytic solutions? 1. Atomic mass of electrolyte 2. Size of the ions produced 3. Nature of the solvent 4. Concentration of electrolyte
Options	
A	1
B	2
C	3
D	4

Question ID	12356
Question Type	MCQ
Question	The unit of rate constant for a second order reaction is: 1. $\text{mol}^{-1} \text{L}^{-1} \text{s}$ 2. s^{-1} 3. $\text{mol L}^{-1} \text{s}^{-1}$ 4. $\text{mol}^{-1} \text{L s}^{-1}$
Options	
A	1
B	2
C	3
D	4

Question ID	12359
Question Type	MCQ
Question	Which of the following statement is INCORRECT in relation to first order reaction? 1. The natural radioactive decay of unstable nuclei follows first order kinetics. 2. Half-life time for first order reaction is directly proportional to initial concentration of reactant. 3. The rate constant for first order reaction is $\frac{2.303}{t} \log \frac{[R]_0}{[R]}$. 4. Hydrogenation of ethene follows first order kinetics.
Options	
A	1
B	2
C	3
D	4

Question ID	12363
Question Type	MCQ
Question	For a reaction following first order kinetics, identify the correct relation between time required for the 75% completion and 50% completion of reaction is: 1. $t_{75\%} = 2t_{50\%}$ 2. $t_{75\%} = 3t_{50\%}$ 3. $2t_{75\%} = t_{50\%}$

$$4. 3t_{75\%} = t_{50\%}$$

Options	
A	1
B	2
C	3
D	4

Question ID	12368
Question Type	MCQ
Question	Which of the following statements are correct for transition metals? A. Transition metals show variable oxidation states with manganese exhibiting maximum oxidation state of +6. B. Scandium is the transition metal which exhibit an oxidation state of +3 only. C. Nickel forms halide in +2 oxidation state only. D. The oxidation state of nickel in $\text{Ni}(\text{CO})_4$ is zero. Choose the correct answer from the options given below: 1. A, B and C Only 2. A, B and D Only 3. A, C and D Only 4. B, C and D only
Options	
A	1
B	2
C	3
D	4

Question ID	12370
Question Type	MCQ
Question	Which of the following is not a characteristic feature of interstitial compounds? 1. High melting point 2. Hardness 3. High conductivity 4. Chemically reactive
Options	
A	1
B	2
C	3
D	4

Question ID	12375
Question Type	MCQ
Question	Arrange the following Ln^{3+} (Ln = lanthanoids) metal ions in increasing order of their spin only magnetic moment values. (Given : Atomic number of Nd = 60, Sm = 62, Gd = 64 and Tb = 65) A. Neodymium (Nd) B. Samarium (Sm) C. Gadolinium (Gd) D. Terbium (Tb) Choose the correct answer from the options given below: 1. D, B, C, A 2. A, B, D, C 3. B, A, C, D

4. B, A, D, C

Options
A
B
C
D

- 1
- 2
- 3
- 4

Question ID	12378
Question Type	MCQ
Question	From the given metal carbonyls, identify which one contains a metal carbonyl-metal bridge bond. 1. $\text{Cr}(\text{CO})_6$ 2. $\text{Mn}_2(\text{CO})_{10}$ 3. $\text{Co}_2(\text{CO})_8$ 4. $\text{Fe}(\text{CO})_5$
Options	
A	1
B	2
C	3
D	4

Question ID	12385
Question Type	MCQ
Question	Which of the following is CORRECT for ethylenediamine tetraacetate ion (EDTA^{4-})? 1. It is a tetradentate ligand and binds through four oxygen atoms to central metal ion in complexes. 2. It is a hexadentate ligand and binds through four nitrogen and two oxygen atoms to central metal ion in complexes. 3. It is a tetradentate ligand and binds through two oxygen and two nitrogen atoms to central metal ion in complexes. 4. It is a hexadentate ligand and binds through two nitrogen and four oxygen atoms to central metal ion in complexes.
Options	
A	1
B	2
C	3
D	4

Question ID

12393

Question Type

MCQ

Question

Match the **LIST-I** with **LIST-II**

LIST-I Complex Species		LIST-II Ligand and spin only magnetic moment values (in BM)	
A.	$[\text{FeX}_6]^{3-}$	I.	$\text{X} = \text{CN}^-$, $\mu = 2.84$
B.	$[\text{CoX}_6]^{3+}$	II.	$\text{X} = \text{H}_2\text{O}$, $\mu = 2.84$
C.	$[\text{MnX}_6]^{3-}$	III.	$\text{X} = \text{NH}_3$, $\mu = 0$
D.	$[\text{NiX}_6]^{2+}$	IV.	$\text{X} = \text{F}^-$, $\mu = 5.92$

Choose the **correct** answer from the options given below:

- A-II, B-I, C-IV, D-III
- A-III, B-IV, C-II, D-I
- A-IV, B-III, C-I, D-II

4. A-II, B-III, C-IV, D-I

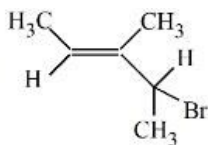
Options

A	1
B	2
C	3
D	4

Question ID 12395

Question Type MCQ

The IUPAC name of the compound,



is:

Question

1. 2-Bromo-3-methylpent-4-ene
2. 4-Bromo-3-methylpent-2-ene
3. 4-Bromo-3, 4-dimethylbut-2-ene
4. 5-Bromo-3-methylpent-2-ene

Options

A	1
B	2
C	3
D	4

Question ID 12403

Question Type MCQ

Identify halogen exchange reactions from the name reactions given below:

- A. Wurtz reaction
- B. Finkelstein reaction
- C. Swarts reaction
- D. Sandmeyer's reaction

Question

Choose the **correct** answer from the options given below:

1. A and C Only
2. A, B and D Only
3. B and C Only
4. C and D Only

Options

A	1
B	2
C	3
D	4

Question ID 12404

Question Type MCQ

The major product formed in the reaction, when 2-Bromopentane is heated with alcoholic potassium hydroxide solution, is:

Question

1. 2-methylbut-1-ene
2. Pent-2-ene
3. Pent-1-ene
4. 2, 3-dimethylbut-2-ene

Options

A	1
B	2
C	3

D	4
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Question ID	12405
Question Type	MCQ
Question	Phenol on treatment with chloroform in presence of sodium hydroxide followed by hydrolysis forms salicylaldehyde. The intermediate compound formed in the reaction is:
Options	
A	1
B	2
C	3
D	4

Question ID	12406
Question Type	MCQ
Question	Which of the following alcohols will give immediate turbidity on reaction with alkyl halide in presence of concentrated HCl and ZnCl₂?
Options	
A	1
B	2
C	3
D	4

Question ID	12407
Question Type	MCQ
Question	Identify which of the following has the highest boiling point.
Options	
A	1
B	2
C	3
D	4

Question ID	12408
Question Type	MCQ
Question	Compound 'A' on treatment with Tollen's reagent gives silver mirror. Compound 'A' on heating with conc. sodium hydroxide gives benzyl alcohol and sodium benzoate. Identify compound 'A':
Options	
A	1
B	2
C	3
D	4

Options	
A	1
B	2
C	3
D	4

Question ID	12409
Question Type	MCQ
Question	From given statements given in relation to carbonyl carbon, identify the correct statement. 1. The carbonyl carbon is sp^2 hybridised and forms two π and one σ bond. 2. Carbonyl carbon is a Lewis base. 3. Carbonyl oxygen is a Lewis acid. 4. Carbonyl carbon has trigonal coplanar structure with bond angle 120°.
Options	
A	1
B	2
C	3
D	4

Question ID	12410
Question Type	MCQ
Question	Which of the following compound is the least acidic? 1. CH_3COOH 2. CH_3CH_2COOH 3. $C_6H_5CH_2COOH$ 4. C_6H_5COOH
Options	
A	1
B	2
C	3
D	4

Question ID	12411
Question Type	MCQ
Question	Arrange the following amines in ascending order of their pK_b values in aqueous solution. A. Trimethylamine B. Dimethylamine C. Methylamine D. Ammonia Choose the correct answer from the options given below: 1. D, C, B, A 2. A, B, C, D 3. B, C, A, D 4. B, A, C, D
Options	
A	1
B	2
C	3
D	4

Question ID	12413
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Question Type	MCQ
Question	A student on heating an unknown compound 'X' with chloroform and ethanolic potassium hydroxide solution observes the formation of foul smelling compound. The compound 'X' is: 1. Acetanilide 2. Aniline 3. Diethylamine 4. Nitrobenzene
Options	
A	1
B	2
C	3
D	4

Question ID	12415																				
Question Type	MCQ																				
Question	Match the LIST-I with LIST-II <table><thead><tr><th colspan="2">LIST-I Name of Vitamin</th><th colspan="2">LIST-II Deficiency disease</th></tr></thead><tbody><tr><td>A.</td><td>B₁₂</td><td>I.</td><td>Cheilosis</td></tr><tr><td>B.</td><td>A</td><td>II.</td><td>Convulsions</td></tr><tr><td>C.</td><td>B₂</td><td>III.</td><td>Pernicious anaemia</td></tr><tr><td>D.</td><td>B₆</td><td>IV.</td><td>Xerophthalmia</td></tr></tbody></table> Choose the correct answer from the options given below: 1. A-III, B-IV, C-I, D-II 2. A-III, B-IV, C-II, D-I 3. A-IV, B-III, C-I, D-II 4. A-IV, B-I, C-II, D-III	LIST-I Name of Vitamin		LIST-II Deficiency disease		A.	B ₁₂	I.	Cheilosis	B.	A	II.	Convulsions	C.	B ₂	III.	Pernicious anaemia	D.	B ₆	IV.	Xerophthalmia
LIST-I Name of Vitamin		LIST-II Deficiency disease																			
A.	B ₁₂	I.	Cheilosis																		
B.	A	II.	Convulsions																		
C.	B ₂	III.	Pernicious anaemia																		
D.	B ₆	IV.	Xerophthalmia																		
Options																					
A	1																				
B	2																				
C	3																				
D	4																				

Question ID	13785
Question Type	MCQ
Question	Which of the following statements is incorrect for proteins? 1. Proteins are polymer of α-amino acids connected by peptide bonds. 2. A peptide bond formation causes elimination of one water molecule. 3. A mono peptide is formed when carboxyl group of glycine combine with amino group of alanine. 4. On the basis of molecular structure proteins can be classified as fibrous and globular.
Options	
A	1
B	2
C	3
D	4