Paper:	CHEMISTRY
Set Name:	SET 06
Exam Date:	10 Aug 2022
Exam Shift:	1
Langauge:	English

Section:	CHEMISTRY
Item No:	1
Question ID:	**692641**
Question Type:	MCQ
Question:	Among the following statements, choose the correct statements, A. In Ionic solid, ions are the constituent particles. B. Ionic solids are soft. C. Ionic solid are electrical insulators in the solid state. D. Ionic solid conduct electricity in molten state. E. Ionic solid have low melting and boiling points. Choose the correct answer from the options given below:
A:	A, C & D only
B:	A, D & E only
C:	A, B & C only
D:	A, C & E only

Section:	CHEMISTRY
Item No:	2
Question ID:	**692642**
Question Type:	MCQ
Question:	Atoms of element B form hcp lattice and those of the element A occupy 2/3 rd of tetrahedral voids. What is the formula of the compound formed by the elements A and B?
A:	A_3B_4
B:	A_4B_3
C:	A_2B_3
D:	A_3B_2

Section:	CHEMISTRY
Item No:	3
Question ID:	**692643**
Question Type:	MCQ
Question:	Consider the 1M aqueous solution of the following compounds and arrange them in the increasing order of elevation in the boiling points. A. $C_6H_{12}O_6$ B. NaCl C. $MgCl_2$ D. $AlCl_3$ E. $Al_2(SO_4)_3$ Choose the correct answer from the options given below:

A:	B < C < D < E < A
B:	A < E < D < C < B
C:	A < B < C < D < E
D:	E < D < C < B < A

Section:	CHEMISTRY
Item No:	4
Question ID:	**692644**
Question Type:	MCQ
Question:	Calculate the molarity of a solution containing 5g of NaOH in 450 mL solution
A:	$0 \cdot 278 \times 10^{-3}$ M
B:	0 ·278 M
C:	$2 \cdot 78 \times 10^{-3}$ M
D:	2·78 M

Section:	CHEMISTRY
Item No:	5
Question ID:	**692645**
Question Type:	MCQ
Question:	Among the following statements related to ionic conductance, choose the correct statements. A. Ionic conductance depends on the nature of electrolyte B. Ionic conductance is due to the movements of electrons C. Ionic conductance is also called electronic conductance D. Ionic conductance depends on temperature E. Ionic conductance also depends on the nature of solvent Choose the correct answer from the options given below:
A:	A, B and C only
B:	B, C and D only
C:	B, C and E only
D:	A, D and E only

Section:	CHEMISTRY
Item No:	6
Question ID:	**692646**
Question Type:	MCQ
Question:	Λ°_{m} for NaCl, HCl and NaOAc are 126.4, 425.9 and 91.0 S cm^2 mol^{-1} respectively. Calculate Λ° for HOAc
A:	390.5 S cm^2 mol^{-1}
B:	643.3 S cm^2 mol^{-1}
C:	461.3 S cm^2 mol^{-1}
D:	208.5 S cm^2 mol^{-1}

Section:	CHEMISTRY
Item No:	7

Question ID:	**692647**
Question Type:	MCQ
Question:	How much charge is required for the reduction of 1 mol of MnO_4^- to Mn^{2+} ?
A:	1 F
B:	5 F
C:	3 F
D:	6 F

Section:	CHEMISTRY
Item No:	8
Question ID:	**692648**
Question Type:	MCQ
Question:	The products formed at cathode and anode by electrolysis of aqueous NaCl solution respectively are
A:	Na, Cl_2
B:	Na, O_2
C:	H_2, Cl_2
D:	H_2 , O_2

Section:	CHEMISTRY
Item No:	9
Question ID:	**692649**
Question Type:	MCQ
Question:	The artificial sweetner used only for cold food is
A:	Alitame
B:	Sucralose
C:	Aspartame
D:	Saccharin

Section:	CHEMISTRY
Item No:	10
Question ID:	**6926410**
Question Type:	MCQ
Question:	Rate constant 'k' for a certain reaction is $k = 2 \cdot 3 \times 10^{-5}$ L $mol^{-1}s^{-1}$. Order of the reaction is:
A:	0
B:	1
C:	2
D:	3

Section:	CHEMISTRY
Item No:	11
Question ID:	**6926411**

Question Type:	MCQ
Question:	The decomposition of NH_3 on platinum surface is zero order reaction. If $k = 2 \cdot 5 \times 10^{-4}$ mol $L^{-1}s^{-1}$ the rate of production of H_2 is
A:	$2 \cdot 5 \times 10^{-4}$ mol $L^{-1}s^{-1}$
B:	$7 \cdot 5 \times 10^{-4}$ mol $L^{-1}s^{-1}$
C:	$5 \cdot 0 \times 10^{-4}$ mol $L^{-1}s^{-1}$
D:	$10 \cdot 0 \times 10^{-4}$ mol $L^{-1}s^{-1}$

Section:	CHEMISTRY
Item No:	12
Question ID:	**6926412**
Question Type:	MCQ
Question:	The molecularity of the following elementary reaction is $NH_4NO_2 \rightarrow N_2 + 2H_2O$
A:	Zero
B:	One
C:	Two
D:	Three

Section:	CHEMISTRY
Item No:	13
Question ID:	**6926413**
Question Type:	MCQ
Question:	Which of the following is not the characteristic of physisorption?
A:	It arises because of vander Waals forces.
B:	It is not specific in nature.
C:	Enthalpy of adsorption is high.
D:	It results into multi molecular layers on adsorbent surface under high pressure.

Section:	CHEMISTRY
Item No:	14
Question ID:	**6926414**
Question Type:	MCQ
Question:	Which one of the following is an emulsion?
A:	Smoke
B:	Hair cream
C:	Paint
D:	Cheese

Section:	CHEMISTRY
Item No:	15
Question ID:	**6926415**
Question Type:	MCQ

Question:	Caprolactam is the starting material for
A:	Nylon 6,6
B:	Nylon 6
C:	Nylon 2,6
D:	Dacron

Section:	CHEMISTRY
Item No:	16
Question ID:	**6926416**
Question Type:	MCQ
Question:	Which of the following is a positively charged Sol?
A:	Starch
B:	Gum
C:	Gold Sol
D:	Blood

Section:	CHEMISTRY
Item No:	17
Question ID:	**6926417**
Question Type:	MCQ
Question:	Match list I with list II List I / List II A. Siderite — I. Aluminium B. Malachite — II. Iron C. Calamine — III. Copper D. Bauxite — IV. Zinc Choose the correct answer from the options given below:
A:	A - I, B - II, C - III, D - IV
B:	A - II, B - III, C - IV, D - I
C:	A - IV, B - III, C - II, D - I
D:	A - III, B - II, C - IV, D - I

Section:	CHEMISTRY
Item No:	18
Question ID:	**6926418**
Question Type:	MCQ
Question:	The metal refined by Van Arkel method is
A:	Ni
B:	Zr
C:	Cu
D:	Sn

Section:	CHEMISTRY
Item No:	19
Question ID:	**6926419**
Question Type:	MCQ
Question:	Arrange the following hydrides in increasing order of thermal stability. A. H_2O B. H_2Se C. H_2Po D. H_2Te E. H_2S Choose the correct answer from the options given below:
A:	A < B< C<D<E
B:	C<D<B<E<A
C:	C<D<E<B<A
D:	A<E<B<D<C

Section:	CHEMISTRY
Item No:	20
Question ID:	**6926420**
Question Type:	MCQ
Question:	Match list I with list II **List I** / **List II** A. Ammonia — I. Ostwald's process B. Chlorine — II. Contact process C. Sulphuric Acid — III. Deacon process D. Nitric Acid — IV. Haber's process Choose the correct answer from the options given below:
A:	A - IV, B - III, C - II, D - I
B:	A -IV, B - I, C - II, D - III
C:	A - IV, B - III, C - I, D - II
D:	A - IV, B - I, C - III, D - II

Section:	CHEMISTRY
Item No:	21
Question ID:	**6926421**
Question Type:	MCQ
Question:	The formula of a noble gas species which is isostructural with BrO_3^- is :
A:	$XeOF_4$
B:	XeF_2
C:	XeO_3
D:	XeF_4

Section:	CHEMISTRY
Item No:	22
Question ID:	**6926422**
Question Type:	MCQ
Question:	Match list I with list II **List I (Transition Metals)** / **List II (Maximum Oxidation State)** A. Ti — I. 7 B. V — II. 4 C. Mn — III. 5 D. Cu — IV. 2 Choose the correct answer from the options given below:
A:	A – II, B – III, C- I, D – IV
B:	A - I, B - II, C - III, D- IV
C:	A - III, B - I, C -II , D- IV
D:	A - II , B - I, C - III, D- IV

Section:	CHEMISTRY
Item No:	23
Question ID:	**6926423**
Question Type:	MCQ
Question:	The metal from first transition series having positive $E^{\circ}_{M^{2+}/M}$ value :
A:	Cr
B:	V
C:	Cu
D:	Ni

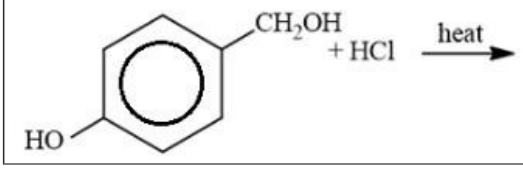
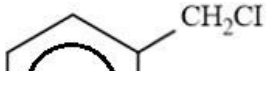
Section:	CHEMISTRY
Item No:	24
Question ID:	**6926424**
Question Type:	MCQ
Question:	Magnetic moment of a divalent ion in aqueous solution of an element with atomic number 25 is :
A:	2.84 BM
B:	3.87 BM
C:	4.90 BM
D:	5.92 BM

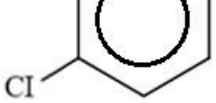
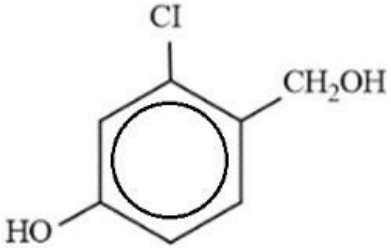
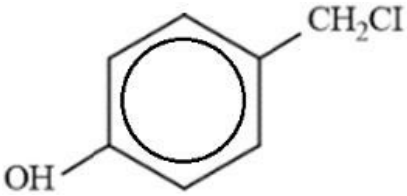
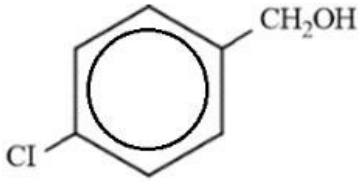
Section:	CHEMISTRY
Item No:	25
Question ID:	**6926425**
Question Type:	MCQ

Question:	Which one of the following transition metal ion is colourless?
A:	Sc^{3+}
B:	V^{2+}
C:	Mn^{2+}
D:	Co^{3+}

Section:	CHEMISTRY
Item No:	26
Question ID:	**6926426**
Question Type:	MCQ
Question:	Among the following statements, choose the correct statements. A. SN^2 reaction proceeds with stereo chemical inversion. B. The process of conversion of Racemic mixture into enantiomer is known as Racemisation C. A mixture containing 2 enantiomers in equal proportions is known as Racemic mixture. D. The stereoisomers related to each other as superimposable mirror image are called enantiomers. E. The objects which are non- superimposable on their mirror image are said to be chiral and this properly is known as chirality. Choose the correct answer from the options given below:
A:	A, B and C only
B:	A, C and E only
C:	B, C and E only
D:	C, D and E only

Section:	CHEMISTRY
Item No:	27
Question ID:	**6926427**
Question Type:	MCQ
Question:	IUPAC name of neopentyl chloride is
A:	1- Chloro – 2, 2 – dimethylpropane
B:	2 - Chloro – 1, 2 – dimethylpropane
C:	2 - Chloro – 2 –Methylbutane
D:	2 - Chloro – 2 – Methylpentane

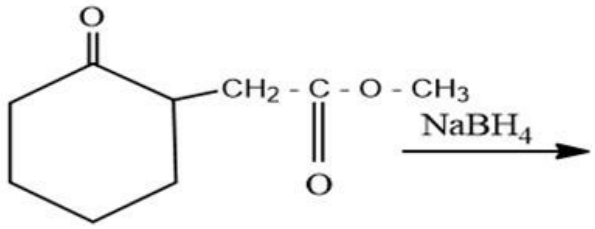
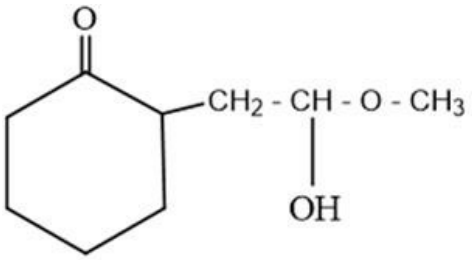
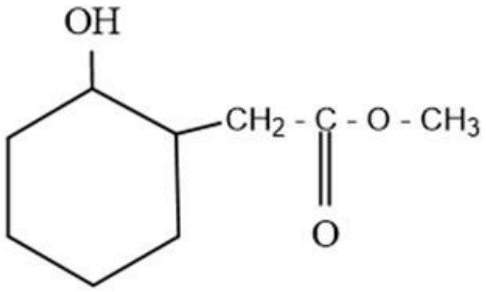
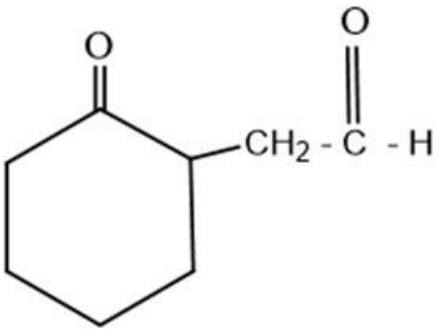
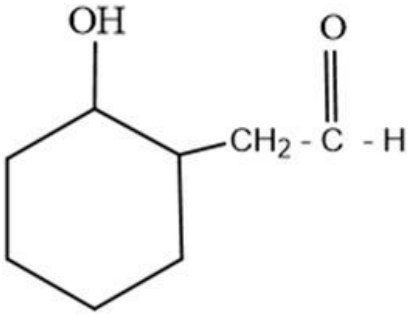
Section:	CHEMISTRY
Item No:	28
Question ID:	**6926428**
Question Type:	MCQ
Question:	The structure of major monohalo product in the following reaction is _____ 
	

A:	
B:	
C:	
D:	

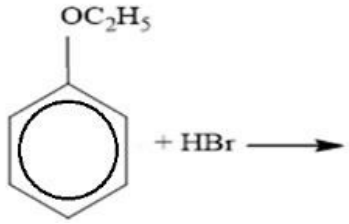
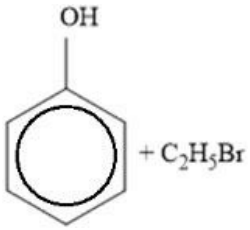
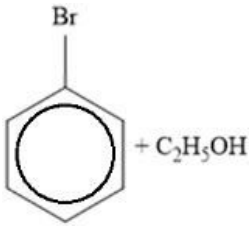
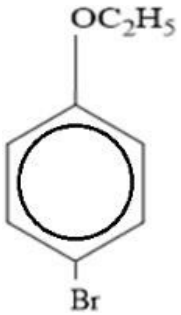
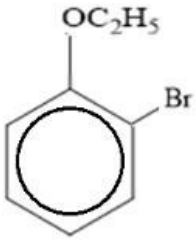
Section:	CHEMISTRY
Item No:	29
Question ID:	**6926429**
Question Type:	MCQ
Question:	Among the following statements, choose the correct statements. A. Boiling point of alcohols increases with increase in the number of carbon atoms. B. In alcohols, boiling points increases with increase of branching in carbon chain. C. Boiling points of alcohols are lesser in comparison to haloalkanes of comparable molecular mass. D. Boiling points of alcohols are higher in comparison to hydrocarbons of comparable molecular mass. E. The high boiling points of alcohols are mainly due to the presence of intramolecular hydrogen bonding. Choose the correct answer from the options given below:
A:	A, D and E only
B:	A, B and C only
C:	B, C and D only
D:	C, D and E only

Section:	CHEMISTRY
Item No:	30
Question ID:	**6926430**
Question Type:	MCQ
Question:	Arrange the following compounds in increasing order of their acid strength : A. Propan-1- o1 B. 3- nitrophenol C. 3, 5- dinitrophenol D. Phenol E. 4 – Methylphenol Choose the correct answer from the options given below:
A:	A <B <C <D <E

B:	C <B<D<E<A
C:	A<B<C<D<E
D:	A<E<D<B<C

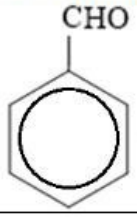
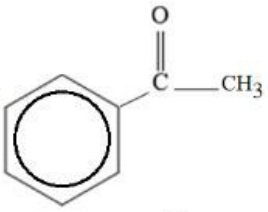
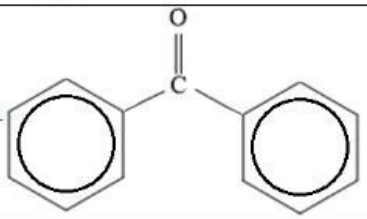
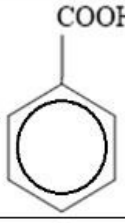
Section:	CHEMISTRY
Item No:	31
Question ID:	**6926431**
Question Type:	MCQ
Question:	The structure of the product of the following reaction is : 
A:	
B:	
C:	
D:	

Section:	CHEMISTRY
Item No:	32
Question ID:	**6926432**

Question Type:	MCQ
Question:	The product of the following reaction is : 
A:	
B:	
C:	
D:	

Section:	CHEMISTRY
Item No:	33
Question ID:	**6926433**
Question Type:	MCQ
Question:	Amino acid in zwitter ionic form show
A:	Acid Behaviour
B:	Basic Behaviour
C:	Amphoteric Behaviour
D:	Neutral Behaviour

Section:	CHEMISTRY
Item No:	34
Question ID:	**6926434**
Question Type:	MCQ
	Match list I with list II

Question:	List I (Nomenclature) / List II (Sturucture) 1. Acetophenone — I.  2. Benzaldehyde — II.  3. Benzoic acid — III.  4. Benzophenone — IV.  Choose the correct answer from the options given below:
A:	A –III , B – I, C- II, D – IV
B:	A - II, B – I, C -IV, D-III
C:	A –I , B -II, C - III, D- IV
D:	A - IV, B -III , C - II, D-I

Section:	CHEMISTRY
Item No:	35
Question ID:	**6926435**
Question Type:	MCQ
Question:	Which simple chemical test is used to distinguish between ethanal & propanal?
A:	Iodoform test
B:	Tollen's test
C:	Fehling's test
D:	Lucas test

Section:	CHEMISTRY
Item No:	36
Question ID:	**6926436**
Question Type:	MCQ
Question:	Which of the following compound would undergo Aldol condensation?
A:	Methanal
B:	Benzaldehyde
C:	2,2- Dimethylbutanal

D:	Phenylacetaldehyde

Section:	CHEMISTRY
Item No:	37
Question ID:	**6926437**
Question Type:	MCQ
Question:	Among the following statements choose the correct statements A. Analgesics reduce or abolish pain without causing impairment of consciousness, mental confusion. B. Tranquilizers are neurological inactive drugs. C. Morphine is the example of non- narcotic analgesics. D. Disinfectants are applied to inanimate objects whereas antiseptics are applied to the living tissues. E. Same substance can act as an antiseptic as well as disinfectant by varying the concentration. Choose the correct answer from the options given below:
A:	A, D and E only
B:	B, C and D only
C:	A, C and E only
D:	B, C and E only

Section:	CHEMISTRY
Item No:	38
Question ID:	**6926438**
Question Type:	MCQ
Question:	Out of the following artificial sweetning agents, which one has highest sweetness value in comparison to cane sugar?
A:	Saccharin
B:	Alitame
C:	Sucralose
D:	Aspartame

Section:	CHEMISTRY
Item No:	39
Question ID:	**6926439**
Question Type:	MCQ
Question:	Among the following polymers, which one is the copolymer?
A:	Polypropene
B:	Polystyrene
C:	Polyvinyl chloride
D:	Glyptal

Section:	CHEMISTRY
Item No:	40
Question ID:	**6926440**
Question Type:	MCQ
Question:	Among the following, which one is a disaccharide?

A:	Glucose
B:	Glycogen
C:	Maltose
D:	Starch

Section:	CHEMISTRY
Item No:	41
Question ID:	**6926441**
Question Type:	MCQ
Passage:	The reaction of amines with mineral acids to form ammonium salt shows that these are basic in nature. Amines have an unshared pair of electron on nitrogen atom due to which they behave as lewis base. Basicity of amines is related to their structure. Basic character of an amine depends upon the ease of formation of cation by accepting a proton from the acid. The more stable the cation is relative to the amine, more basic is the amine.
Question:	Structure of ammonium salt when ethylamine reacts with one mole of HCl?:
A:	$C_2H_5 - NH_3^+ \ Cl^-$
B:	$(C_2H_5)_2 - NH_2^+ \ Cl^-$
C:	$(C_2H_5)_3 - NH^+Cl^-$
D:	$(C_2H_5)_4 - N^+Cl^-$

Section:	CHEMISTRY
Item No:	42
Question ID:	**6926442**
Question Type:	MCQ
Passage:	The reaction of amines with mineral acids to form ammonium salt shows that these are basic in nature. Amines have an unshared pair of electron on nitrogen atom due to which they behave as lewis base. Basicity of amines is related to their structure. Basic character of an amine depends upon the ease of formation of cation by accepting a proton from the acid. The more stable the cation is relative to the amine, more basic is the amine.
Question:	Among the following amines, which one is most basic (in aqueous solution)?
A:	NH_3
B:	$C_2H_5NH_2$
C:	$(C_2H_5)_2NH$
D:	$(C_2H_5)_3N$

Section:	CHEMISTRY
Item No:	43
Question ID:	**6926443**
Question Type:	MCQ
Passage:	The reaction of amines with mineral acids to form ammonium salt shows that these are basic in nature. Amines have an unshared pair of electron on nitrogen atom due to which they behave as lewis base. Basicity of amines is related to their structure. Basic character of an amine depends upon the ease of formation of cation by accepting a proton from the acid. The more stable the cation is relative to the amine, more basic is the amine.

Question:	The correct order of basicity of amines in gas phase
A:	$1° < 3° < 2°$
B:	$3° < 1° < 2°$
C:	$2° < 3° < 1°$
D:	$1° < 2° < 3°$

Section:	CHEMISTRY
Item No:	44
Question ID:	**6926444**
Question Type:	MCQ
Passage:	The reaction of amines with mineral acids to form ammonium salt shows that these are basic in nature. Amines have an unshared pair of electron on nitrogen atom due to which they behave as lewis base. Basicity of amines is related to their structure. Basic character of an amine depends upon the ease of formation of cation by accepting a proton from the acid. The more stable the cation is relative to the amine, more basic is the amine.
Question:	Among the following, which one has the highest pK_b value?
A:	$C_2H_5NH_2$
B:	$C_6H_5NHCH_3$
C:	$(C_2H_5)_2NH$
D:	$C_6H_5NH_2$

Section:	CHEMISTRY
Item No:	45
Question ID:	**6926445**
Question Type:	MCQ
Passage:	The reaction of amines with mineral acids to form ammonium salt shows that these are basic in nature. Amines have an unshared pair of electron on nitrogen atom due to which they behave as lewis base. Basicity of amines is related to their structure. Basic character of an amine depends upon the ease of formation of cation by accepting a proton from the acid. The more stable the cation is relative to the amine, more basic is the amine.
Question:	Among the following, which one has the highest K_b value?
A:	$C_2H_5NH_2$
B:	$C_6H_5N(CH_3)_2$
C:	$(C_2H_5)_2NH$
D:	CH_3NH_2

Section:	CHEMISTRY
Item No:	46
Question ID:	**6926446**
Question Type:	MCQ
Passage:	According to the valence bond theory, the metal atom or ion under the influence of ligands can use its (n-1)d, ns, np, nd orbitals for hybridisation to yield a set of equivalent orbitals of definite geometry. These hybridised orbitals are allowed to overlap with ligand orbitals that can donate electron pairs for bonding. It is usually possible to predict the geometry of a complex from the knowledge of its magnetic behaviour on the basis of the valence bond theory. Consider the formation of $[Co(NH_3)_5Cl]Cl_2$ and answer the following question:

Question:	The IUPAC name of the above coordination entity is
A:	Chloridopentaamminecobaltate (II) chloride
B:	Chloridopentaamminecobaltate (II) dichloride
C:	Pentaamminechloridocobaltate (III) chloride
D:	Pentaamminechloridocobalt (III) dichloride

Section:	CHEMISTRY
Item No:	47
Question ID:	**6926447**
Question Type:	MCQ
Passage:	According to the valence bond theory, the metal atom or ion under the influence of ligands can use its (n-1)d, ns, np, nd orbitals for hybridisation to yield a set of equivalent orbitals of definite geometry. These hybridised orbitals are allowed to overlap with ligand orbitals that can donate electron pairs for bonding. It is usually possible to predict the geometry of a complex from the knowledge of its magnetic behaviour on the basis of the valence bond theory. Consider the formation of $[Co(NH_3)_5Cl]Cl_2$ and answer the following question:
Question:	The spin only magnetic moment of the complex $[Co(NH_3)_5Cl]Cl_2$ in BM is
A:	1.7
B:	0.0
C:	3.8
D:	4.9

Section:	CHEMISTRY
Item No:	48
Question ID:	**6926448**
Question Type:	MCQ
Passage:	According to the valence bond theory, the metal atom or ion under the influence of ligands can use its (n-1)d, ns, np, nd orbitals for hybridisation to yield a set of equivalent orbitals of definite geometry. These hybridised orbitals are allowed to overlap with ligand orbitals that can donate electron pairs for bonding. It is usually possible to predict the geometry of a complex from the knowledge of its magnetic behaviour on the basis of the valence bond theory. Consider the formation of $[Co(NH_3)_5Cl]Cl_2$ and answer the following question:
Question:	The hybridization of cobalt in the above coordination entity is
A:	sp^3d^2
B:	d^2sp^3
C:	sp^3d
D:	dsp^3

Section:	CHEMISTRY
Item No:	49
Question ID:	**6926449**
Question Type:	MCQ
Passage:	According to the valence bond theory, the metal atom or ion under the influence of ligands can use its (n-1)d, ns, np, nd orbitals for hybridisation to yield a set of equivalent orbitals of definite geometry. These hybridised orbitals are allowed to overlap with ligand orbitals that can donate electron pairs for bonding. It is usually

	possible to predict the geometry of a complex from the knowledge of its magnetic behaviour on the basis of the valence bond theory. Consider the formation of $[Co(NH_3)_5Cl]Cl_2$ and answer the following question:
Question:	The coordination number of cobalt in the above coordination entity is
A:	2
B:	4
C:	5
D:	6

Section:	CHEMISTRY
Item No:	50
Question ID:	**6926450**
Question Type:	MCQ
Passage:	According to the valence bond theory, the metal atom or ion under the influence of ligands can use its (n-1)d, ns, np, nd orbitals for hybridisation to yield a set of equivalent orbitals of definite geometry. These hybridised orbitals are allowed to overlap with ligand orbitals that can donate electron pairs for bonding. It is usually possible to predict the geometry of a complex from the knowledge of its magnetic behaviour on the basis of the valence bond theory. Consider the formation of $[Co(NH_3)_5Cl]Cl_2$ and answer the following question:
Question:	The primary valence of Co in above coordination entity is
A:	1
B:	2
C:	3
D:	4