Sr No.	MSc Chemistry
1	Find the next term in the series: BMO, EOQ, HQS, ?
Alt1	KSU
Alt2	LMN
Alt3	SOV
Alt4	SOW

2	Choose word from the given options which bears the same relationship to the third word, as the first two bears: Misogamy: Marriage:: Misogyny:?
Alt1	Children
Alt2	Husband
Alt3	Relations
Alt4	Women

3	Select the lettered pair that has the same relationship as the original pair of words: Indolence : Beaver
Alt1	Elegance: Peacock
Alt2	Ferocity: Lamb
Alt3	Passivity: Cow
Alt4	Joviality: Hyena

4	Select the lettered pair that has the same relationship as the original pair of words: Man : Humanity
Alt1	Frame: Picture
Alt2	Scholar: Books
Alt3	Flowers: Fragrance
Alt4	Drop: Ocean

5	Choose the set that has the same relationship as in the original: Horse : Foal : Mare
Alt1	Sheep: lamb: Goat
Alt2	Lion: Cub: Den
Alt3	Man: Child: Woman
Alt4	Cat: Kitten: Puppy

6	Spot the defective segment from the following:
Alt1	I didn't expect
Alt2	this kind of treatment
Alt3	from your hands
Alt4	this morning

7	Many rural children go to school ---------.
Alt1	by foot
Alt2	by walk
Alt3	on foot
Alt4	on their feet

8	------- is facing the threat of extinction.
Alt1	Tigers
Alt2	Tiger
Alt3	The tiger
Alt4	A tiger

9	Choose the option closest in meaning to the given word: TERSE
Alt1	concise
Alt2	curt
Alt3	rude
Alt4	poetic

10	Choose the antonymous option you consider the best: RETICENT
Alt1	communicative
Alt2	clamorous
Alt3	reserved
Alt4	dormant

11	In each of the following questions some statements are followed by two conclusions (i) and (ii). Read the statements carefully and then decide which of the conclsions follow beyond a reasonable doubt. Mark your answer as Statement: I am a Kashmiri Pandit and feel proud that Indira Gandhi belonged to the same community Conclusions: (i) Indira Gandhi is proud of being a Kashmiri Pandit (ii) All Kashmiri Pandits feel proud of Indira Gandhi
Alt1	If only conclusion (i) follows
Alt2	If only conclusion (ii) follows
Alt3	If neither conclusion (i) nor (ii) follows
Alt4	If both the conclusions follow

12	What value should come in place of question mark (?) in the following number series? 48, ?, 94, 123, 156, 193
Alt1	74
Alt2	65
Alt3	69
Alt4	77

13	If in a certain language CARROM is coded as BZQQNL, which word will be coded as HOUSE ?
Alt1	IPVTF
Alt2	GNTRD
Alt3	INVRF

Alt4	GPTID

14	Teeth : Chew in the same way as
Alt1	Mind : Think
Alt2	Food : Taste
Alt3	Sweater : Heat
Alt4	Eyes : Flicker

15	The following information is given: Eight persons P, Q, R, S, T, U, V and W are sitting around a rectangular table in such a way that two persons sit on each of the four sides of the table facing the centre. Persons sitting on opposite sides are exactly opposite to each other. S faces North and sits exactly opposite W. T is on the immediate left to W. P and V sit on the same side. V is exactly opposite Q, who is on the immediate right of R. U is next to the left of S. Who is sitting opposite to P ?
Alt1	V
Alt2	S
Alt3	T
Alt4	R

16	There are 4 prime numbers written in ascending order. The product of the first three is 385, and that of the last three is 1001, Find the first number
Alt1	5
Alt2	11
Alt3	29
Alt4	19

17	Mean of the first 10 even numbers is
Alt1	12
Alt2	11
Alt3	14
Alt4	9

18	If you were to spell out the numbers, how far would you have to go before encountering the letter 'A'?
Alt1	91
Alt2	21
Alt3	51
Alt4	101

19	A man starts from his office and goes 5 Kms east, Then he turn to the left and again walks for 3 Kms, he turns left and walks 5 kms. At what distance is he from the starting point?
Alt1	3
Alt2	4
Alt3	6
Alt4	7

20	The first person is 100cm tall. Each subsequent person is 20% taller than the previous person. What is the Median height of 5 persons.
Alt1	173
Alt2	120
Alt3	144
Alt4	207

21	The estimated molar heat capacity of atomic crystals at high-temperature limit by Einstein solid model is:-
Alt1	1/2 R
Alt2	R
Alt3	3R
Alt4	3/2 R

22	The motion of liquid induced by an applied potential across a porous material is called as:-
Alt1	current density
Alt2	electroosmosis
Alt3	streaming current
Alt4	diffusion

23	fac and mer isomers of [Co(NH3)3Cl3] are:-
Alt1	ionization isomers
Alt2	coordination isomers
Alt3	optical isomers
Alt4	geometrical isomers

24	Which one of the following statements is correct regarding C2 and [N2]-?
Alt1	Both C2 and [N2]- are diamagnetic
Alt2	C2 is paramagnetic and [N2]- is diamagnetic
Alt3	Both C2 and [N2]- are paramagnetic
Alt4	C2 is diamagnetic and [N2]- is paramagnetic

25	Which of the following electronic component is used for converting Alternating Current (AC) to Direct current (DC)?
Alt1	p-n-p Transistor
Alt2	n-p-n Transistor
Alt3	p-n Junction Diode
Alt4	Operational Amplifier

26	Bohr-Sommerfeld model of the hydrogen atom considers:-
Alt1	Circular orbit of the electron
Alt2	Elliptical orbit of the electron
Alt3	Spiral orbit of the electron
Alt4	Elliptical as well as circular orbit of the electron

27	The Haber process is used in the manufacture of:-
Alt1	NH3

Alt2	N2H4
Alt3	N3H
Alt4	NH2OH

28	If the enthalpy change for a chemical reaction is negative then the reaction can be:-
Alt1	thermoneutral type
Alt2	exothermic
Alt3	endothermic
Alt4	not feasible

29	Correct order of following organic compounds according to increasing dipole moment is:-A: Chloromethane; B: Formaldehyde; C: acetylene
Alt1	A>B>C
Alt2	B>A>C
Alt3	B>C>A
Alt4	A>C>B

30	Structure of [ICl4]- is:-
Alt1	square planar
Alt2	trigonal bipyramid
Alt3	tetrahedral
Alt4	see-saw

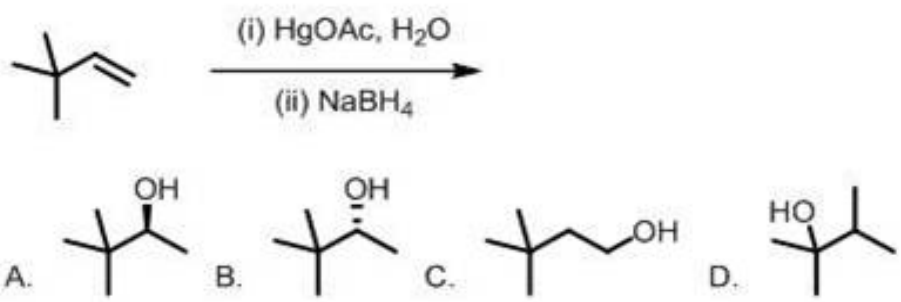
31	The structure of IF7 is:-
Alt1	Octahedral
Alt2	Trigonal bipyramid
Alt3	Square Pyramid
Alt4	Pentagonal bipyramid

32	UF6, which is used in nuclear fuel processing, is produced from:-
Alt1	U and ClF
Alt2	U and F2O
Alt3	U and ClF3
Alt4	U and F2

33	In the case of entropy of mixing of gasses, the Gibbs Paradox arises due to obvious mistake in considering the following parameter:-
Alt1	Improper summation of the mole fractions for the gas
Alt2	The definition of mole fractions for the same gas,
Alt3	The treatment of the logarithmic function improperly
Alt4	The definition of entropy

34	The hybridization in XeF4 is:-
Alt1	d2sp2
Alt2	sp3d3
Alt3	sp3d2
Alt4	sp3d

35	Which of the following statement is the Dulong-Petit law for specific heat of solid at constant volume, Cv?
Alt1	Cv = K Tv, K is a constant, and T the absolute temperature
Alt2	Cv-Cv = R, Cp is the specific heat at constant pressure, R is the universal gas constant,
Alt3	Cv = kT, k is the Boltzmann constant, T the absolute temperature,
Alt4	Cv = 3R, R is the universal gas constant,

36	Identify the product(s) formed in the following reaction:-
	
Alt1	C alone
Alt2	A alone
Alt3	A, B and D
Alt4	A and B

37	In the stable conformation of trans-1,4-diemethylcylohexane, two methyl groups are:-
Alt1	axial and β
Alt2	equatorial and β
Alt3	equatorial and α, β
Alt4	axial and α, β

38	B3N3H6 reacts with HCl and gives:-
Alt1	[(BH2)3(NHCl)3]
Alt2	No reaction
Alt3	[(BH2)3(NH2)3]
Alt4	[(BHCl)3(NH2)3]

39	The normalization constant of the function (2Φ1- Φ2- Φ3) corresponding to the molecule involving 3π orbital is:-
Alt1	1/√2
Alt2	1/√6
Alt3	0
Alt4	1/√4

40	I3- ion is:-
Alt1	planar
Alt2	linear
Alt3	V-shape

Alt4	T-shape

41	In the case of diamagnetic materials which of the following statement is correct:-
Alt1	Magnetic moment is classical in origin
Alt2	Net electronic spin magnetic moment of paired electrons in same orbital is nonzero
Alt3	Individual electronic spin is spin magnetic moment is zero
Alt4	Magnetic moment depends on temperature

42	The correct order of bond angles (smallest first) in H2S, NH3, BF3 and SiH4 is:-
Alt1	H2S < SiH4 < NH3 < BF3
Alt2	NH3 < H2S < SiH4 < BF3
Alt3	H2S < NH3 < BF3 < SiH4
Alt4	H2S < NH3 < SiH4 < BF3

43	An organic compound displayed two singlets at 1.5 and 2.0 ppm. The compound is:-
Alt1	isopropyl prionate
Alt2	Methyl pivalate
Alt3	ethyl isobutyrate
Alt4	tert-butyl acetate

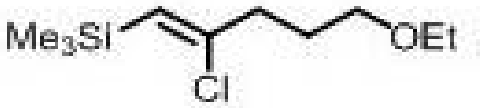
44	How many isoprene units are present in α-pinene?
Alt1	4
Alt2	2
Alt3	3
Alt4	1

45	 (Limonene)
Alt1	Inversion of configuration at C(4)
Alt2	Generation of carbocation at C(8) due protonation of double bond b
Alt3	Generation of carbocation at C(1) due protonation of double bond a
Alt4	Generation of carbanion at C(2)

46	NF3 and NCl3 are covalent; NCl3 undergoes hydrolysis while NF3 does not because:-
Alt1	dipole moment of NF3 is more than NCl3
Alt2	electronegativity of F is greater than Cl
Alt3	NF3 is more stable than NCl3
Alt4	Cl can expand its octet with d-orbitals

47	The estimation of rate for unimolecular reaction type is proposed by:-
Alt1	RRK

Alt2	RRKM
Alt3	Lindemann
Alt4	Arrhenius

48	The major product formed in the following reaction is:-
	
Alt1	
Alt2	
Alt3	
Alt4	

49	In Downs process, sodium is extracted from:-
Alt1	Na2SO4
Alt2	Na2CO3
Alt3	Na2S
Alt4	NaCl

50	Identify correct statement for the reactivity of the following bromides with soft nuclophiles:-
	
Alt1	A reacts predominantly via SN1 pathway and B reacts via SN2
Alt2	A reacts predominantly via SN2 pathway and B reacts via SN1
Alt3	A and B react via SN2 pathway
Alt4	A and B react via SN1 pathway

51	Lattice energy is:-

Alt1	directly proportional to the distance between the ions
Alt2	directly proportional to the charge density of the ions
Alt3	inversely proportional to the charge density of the ions
Alt4	not affected by the charge density

52	Iron is an example for _____ substance:-
Alt1	Ferromagnetic
Alt2	Ferrimagnetic
Alt3	diamagnetic
Alt4	antiferromagnetic

53	In NaCl unit cell structure, the Na+ ions and Cl- ions are placed individually have the following Bravis lattice structure:-
Alt1	Tetragonal
Alt2	Body centered cubic
Alt3	Face centered cubic
Alt4	Simple cubic

54	The weakest acid among the following is:-
Alt1	HCl
Alt2	HBr
Alt3	HI
Alt4	HF

55	The electrical conductivity of metals exhibit the following trend:-
Alt1	Exhibit trangular wave behaviour
Alt2	Remains constant with increase in temperature
Alt3	Decreases with increase in temperatures
Alt4	Increases with increase in temperatures

56	Jahn-Teller distortion is not found in complexes with the following electronic configuration.
Alt1	t2g2 eg0
Alt2	t2g3 eg1
Alt3	t2g3 eg2
Alt4	t2g6 eg1

57	Absorption spectra of aniline in aqueous acid exhibits.
Alt1	Hypochromic effect
Alt2	Hyperchromic effect
Alt3	Bathochromic shift
Alt4	Hypsochromic shift

58	The spin only magnetic moment value of [CoF6]3- is:-
Alt1	4.89 BM
Alt2	7.9 BM
Alt3	0 BM
Alt4	3.2 BM

59	The product obtained by positron emission of oxygen-15 is an isotope of:-
Alt1	7N15
Alt2	7N16
Alt3	9F15
Alt4	9F16

60	The molecular formula of phosphorous is:-
Alt1	P2
Alt2	P4
Alt3	P3
Alt4	P

61	Propose a suitable reagent system for the conversion of 3-hexyne to (E)-3-hexene.
Alt1	H2, Pd/BaSO4
Alt2	H2, Pd/C
Alt3	NaBH4/NiCl2
Alt4	Na/ liq NH3

62	The complex [Pt(NH3)2Cl2] shows:-
Alt1	Optical isomerism
Alt2	Coordination isomerism
Alt3	Geometrical isomerism
Alt4	Linkage isomerism

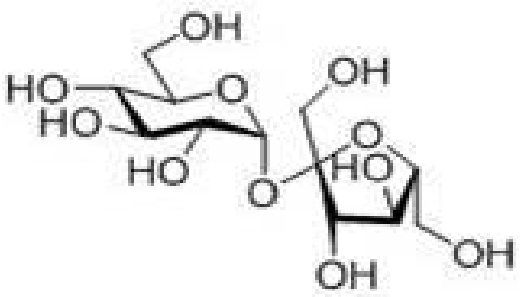
63	How to convert octanol to octanal?
Alt1	KMnO4/NaOH/H2O
Alt2	K2Cr2O7/H2SO2
Alt3	Jones oxidation
Alt4	Swern oxidation

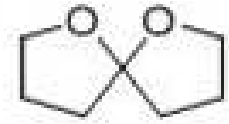
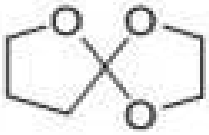
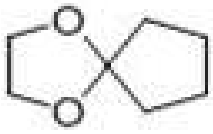
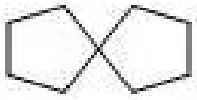
64	How many geometrical isomers are possible for a complex with formula MA4B2 in a planar hexagon geometry?
Alt1	4
Alt2	2
Alt3	1
Alt4	3

65	Half-life (t½) for the second-order reaction if the reactants in their stoichiometric ratios:-
Alt1	1/(kA b0)
Alt2	1/(kB a0)
Alt3	Both of the above
Alt4	ln2/kA

66	Which one of the following molecule possesses diastereotopic protons?
Alt1	2-Pentanol
Alt2	Pentanal

Alt3	n-Pentanol
Alt4	Pentan-3-one

67	Which of the following statements about the following disaccharide are true A. Reducing sugar B. Non-reducing sugar C. Has two glucose units D. Has two mannose units E. Undergoes mutaroration F. Does not undergo mutarotation?
	
Alt1	A, D and E
Alt2	B, C and F
Alt3	B, D and E
Alt4	A, C and F

68	Which one of the following compound is chiral?
Alt1	
Alt2	
Alt3	
Alt4	

69	A function, y = a e-bx , where a and b are two constants, can be converted to the form of a straight line by which of the following mathematical operations?
Alt1	By taking inverse
Alt2	By taking natural logarithm
Alt3	By integrating
Alt4	By differentiation

70	If the bond length of H—F molecule is 1.2 Å, and polarized charge at the atoms is 1.0 x 10-10 esu. Then the electric dipole moment of the molecule will be:-
Alt1	3.16 Debye
Alt2	1.2 Debye
Alt3	2.16 Debye
Alt4	4.16 Debye

71	A hydrocarbon boils at 350 K at 1 atm pressure. The heat of vaporization of the hydrocarbon is:-
Alt1	7530 cal mol-1
Alt2	3750 cal mol-1
Alt3	7350 cal mol-1
Alt4	735 cal mol-1

72	Which of the following are eigen functions of d/dx?
Alt1	log(x)
Alt2	exp(x)
Alt3	sin(x)
Alt4	xn

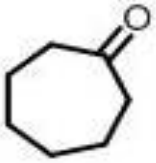
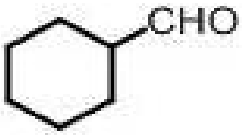
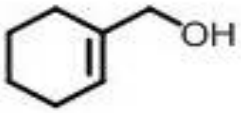
73	Which one of the following metals is present in Ziegler-Natta catalyst?
Alt1	Zr
Alt2	Fe
Alt3	Ti
Alt4	Na

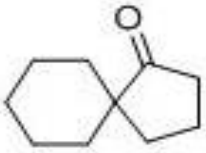
74	When NaCl is heated in presence of sodium vapour, it gives yellow colour. This is due to:-
Alt1	F centre
Alt2	Frenkel defect
Alt3	Schottky defect
Alt4	metal deficiency defect

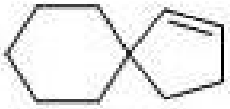
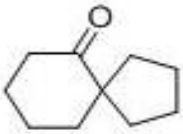
75	In ScC2 has some metallic conduction due to the presence of:-
Alt1	free Sc2+ ions
Alt2	free C22- ions
Alt3	free Sc3+ ions
Alt4	free electrons

76	Which of the following is zero in particle in a box?
Alt1	zero-point energy
Alt2	average position

Alt3	average momentum
Alt4	average kinetic energy

77	The major product formed in the following reaction is:- 
Alt1	
Alt2	
Alt3	
Alt4	

78	Identify the product formed in the following reaction. 
Alt1	
Alt2	

Alt3	
Alt4	

79	The following conversion can be effected by using:- 
Alt1	(i) H2SO4/CH3CN (ii) NaOH
Alt2	NaNH2/THF
Alt3	(i) NaN3/DMSO (ii) LiAlH4
Alt4	NH3/CH3CN

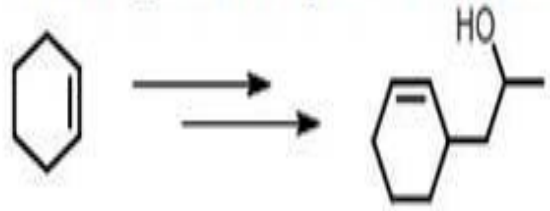
80	Hamiltonian operator does not commute with:-
Alt1	modulus operator
Alt2	Symmetry operator
Alt3	Components of anglular momentum operator
Alt4	Square of the angular momentum operator

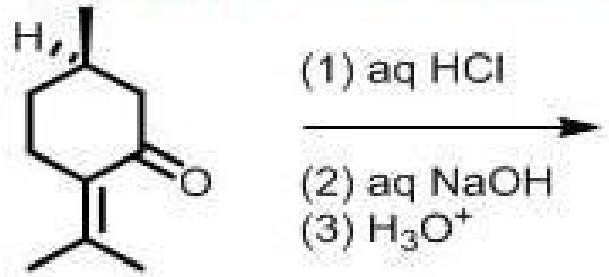
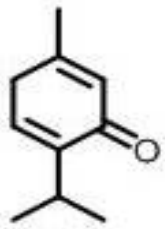
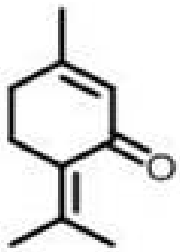
81	Which among the following is super acid:-
Alt1	CF3COOH
Alt2	H2SO4
Alt3	HCl
Alt4	HSbF6

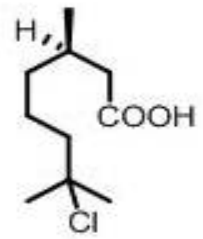
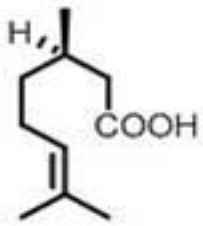
82	Hamiltonian operator does not commute with:-
Alt1	modulus operator
Alt2	Symmetry operator
Alt3	Components of anglular momentum operator
Alt4	Square of the angular momentum operator

83	Which among the following is super acid:-
Alt1	CF3COOH
Alt2	H2SO4
Alt3	HCl
Alt4	HSbF6

84	The vector 2i+j-k is perpendicular to i-4j+λk, where i, j, k are unit vectors, if the value of λ is equal to:-
Alt1	-3
Alt2	-2
Alt3	0
Alt4	-1

85	Correct sequence of reagents which can be used for the following conversion is:- 
Alt1	(i) NBS, CCl4, (ii) Mg, Et2O, (iii) 2-methyloxirane, (iv) aq HCl
Alt2	(i) NBS, CCl4, (ii) 2-methyloxirane, (iii) Mg, Et2O, (iv) aq HCl
Alt3	(i) Mg, Et2O, (ii NBS, CCl4), (iii) 2-methyloxirane, (iv) aq HCl
Alt4	(i) 2-methyloxirane, (ii) NBS, CCl4, , (iii) aq HCl, (iv) Mg, Et2O

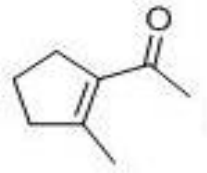
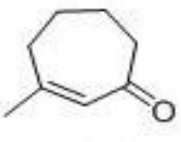
86	Major product in the following transformation is:- 
Alt1	
Alt2	

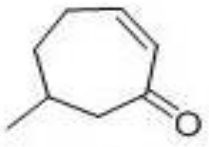
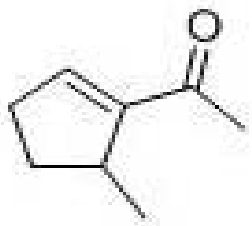
Alt3	
Alt4	

87	The half life, t1/2, for a first order reaction having rate constant k is given by:-
Alt1	t1/2 = 0.693/(dk/dt), t is the time
Alt2	t1/2 = 0.693/k½
Alt3	t1/2 = 0.693/k
Alt4	t1/2 = 0.693/k3/2

88	Which of the following statement is wrong about simple harmonic oscillator?
Alt1	Kinetic energy is maximum at maximum displacement
Alt2	Acceleration is proportional to displacement
Alt3	Frequency of oscillation is independent of mass
Alt4	Velocity will be maximum when amplitude is zero

89	Madelung constant, which is used in the calculation of lattice energy, depends on:-
Alt1	geometry of the crystal
Alt2	the number of ions per unit formula
Alt3	the charge of the anion
Alt4	the charge of the cation

90	What would be product formed in a reaction between 2,7-octanedione and NaOH?
Alt1	
Alt2	

Alt3	
Alt4	

91	The equation (x2/a2) - (y2/b2) = 1 describes a:-
Alt1	parabola
Alt2	straight line
Alt3	hyperbola
Alt4	circle

92	Identify the compound which corresponds to the 1H-NMR (200 MHz, CDCl3) data: δ 7.31-7.28 (m, 2H), 6.96-6.88 (m, 3H), 3.81 (s, 3H).
Alt1	Acetophenone
Alt2	Methyl benzoate
Alt3	Phenyl acetate
Alt4	Anisole

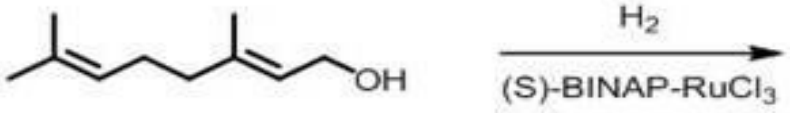
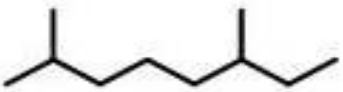
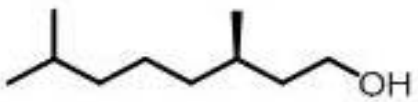
93	If $z=log(x^2+y^2)$ then $x\frac{\partial z}{\partial x}+y\frac{\partial z}{\partial y}$ is:-
Alt1	2(x2+y2)
Alt2	1
Alt3	(x2+y2)
Alt4	2

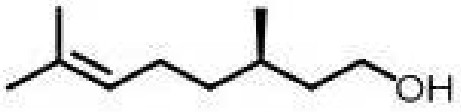
94	In the differential equation 3(d2y/dx2) + (dy/dx)3 = x, the degree and order is:-
Alt1	1, 2
Alt2	3, 3
Alt3	2, 1
Alt4	3, 2

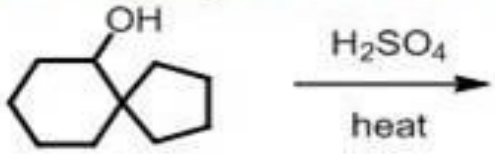
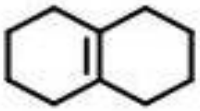
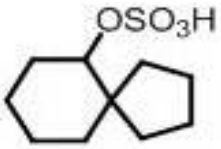
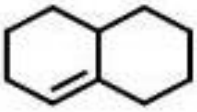
95	IUPAC name of [Co(NH3)3Cl3] is:-
Alt1	Triamminetrichlorocobalt(III)
Alt2	Triamminetrichloridocobalt(III)
Alt3	Trichloridotriammoniacobalt(III)
Alt4	Tris(ammonia)trichlorocobalt(III)

96	The integral ∫ sin(x) cos(x) dx in the interval a to +a:-
Alt1	is not zero except for certain values of a and cos(x) is symmetric in this range
Alt2	is zero for any value of a and sin(x) is symmetric in this range
Alt3	is zero for any value of a and cos(x) is symmetric in this range
Alt4	is zero for any value of a and cos(x) is antisymmetric in this range

97	When an electron of charge e is accelerated through a potential of V volts, the associated wavelength, λ, of the electron will be:-
Alt1	$\lambda = [\frac{h}{(2meV)}]^{1/2}$
Alt2	$\lambda = \frac{h}{(2meV)^{1/2}}$
Alt3	$\lambda = \frac{2meV}{h}$
Alt4	$\lambda = \frac{(2meV)^{1/2}}{h}$

98	Identify the major product in the following reaction:- 
Alt1	
Alt2	
Alt3	

Alt4	

99	The major product in the following reaction is:- 
Alt1	
Alt2	
Alt3	
Alt4	

100	Which one of the following molecule failed to undergo dehydro-halogenation reaction in presence of NaOCH3 in CH3OH?
Alt1	cis-1-Chloro-2-methylcyclohexane
Alt2	2-chloro-1,1,3,3-tetramethylcyclohexane
Alt3	trans-1-Chloro-2-methylcyclohexane
Alt4	1-Chloro-2,2-dimethylcyclohexane