- 61. The correct order in which the first ionisation potential increases is
 - 1) Na, K, Be

2) K, Na, Be

3) K, Be, Na

- 4) Be, Na, K
- 62. 10 cm³ of 0.1 N monobasic acid requires 15 cm³ of sodium hydroxide solution whose normality is
 - 1) 1.5 N

2) 0.15 N

3) 0.066 N

- 4) 0.66 N
- 63. The IUPAC name for tertiary butyl iodide is
 - 1) 4-Iodobutane

- 2) 2-Iodobutane
- 3) 1-Iodo, 3-methyl propane
- 4) 2-Iodo 2-methyl propane
- 64. When sulphur dioxide is passed in an acidified $K_2Cr_2O_7$ solution, the oxidation state of sulphur is changed from
 - 1) + 4 to 0

2) + 4 to + 2

3) +4 to +6

- 4) + 6 to + 4
- 65. Mass of 0.1 mole of Methane is
 - 1) 1 g

2) 16 g

3) 1.6 g

4) 0.1 g

66.	Methoxy	methane and ethanol are		
	1)	Position isomers	2)	Chain isomers
	3)	Functional isomers	4)	Optical isomers
67.	When th	e azimuthal quantum number has	the	value of 2, the number of orbitals possib
	1)	7	2)	5
	3)	3	4)	0
68.		reaction $Fe_2O_3 + 3CO \longrightarrow 2F$ to reduce one mole of ferric oxide		3CO ₂ the volume of carbon monoxid
	1)	$22.4~\mathrm{dm}^3$	2)	44.8 dm ³
	3)	67.2 dm ³	4)	11.2 dm ³
69.	The mon	omers of Buna-S rubber are		
	1)	vinyl chloride and sulphur	2)	butadiene
	3)	styrene and butadiene	4).	isoprene and butadiene
70.	An elem	ent with atomic number 21 is a		A STATE OF THE STATE OF
	1)	halogen	2)	representative element
	3)	transition element	4)	alkali metal



71.	The man	kimum number of hydrogen bonds	that	a molecule of water can have is
	1)	1	2)	2
	3)	3	4)	4
72.	A gas de	eviates from ideal behaviour at a lattract one another	-	pressure because its molecules show the Tyndall effect
	3)	have kinetic energy	4)	are bound by covalent bonds
73.	The reas	gent used to convert an alkyne to	alke	ne is
	, 1)	Zn / HCl	2)	Sn / HCl
	3)	Zn -Hg / HCl	4)	Pd/H_2
74.	When co	ompared to ΔG^0 for the formati	on o	of Al_2O_3 , the ΔG^0 for the formation of
	Cr_2O_3 is			
	1)	higher	2)	lower
	3)	same	4)	unpredicted
75.	In order	to increase the volume of a gas by	109	%, the pressure of the gas should be
	1)	increased by 10 %	2)	increased by 1 %
	3)	decreased by 10 %	4)	decreased by 1 %



76.	Catalytic dehydrogenation of a primary alcohol gives a				
	1)	secondary alcohol	2)	aldehyde	
	3)	ketone	4)	ester	
77.	Excess o	of PCl_5 reacts with conc. H_2SO_4 give	ring		
	1)	chlorosulphonic acid	2)	thionyl chloride	
	3)	sulphuryl chloride	4)	sulphurous acid	
78.	If one mole of ammonia and one mole of hydrogen chloride are mixed in a closed container to form ammonium chloride gas, then				
	1)	$\Delta H > \Delta u$	2)	$\Delta H = \Delta u$	
	3)	$\Delta H < \Delta u$	4)	there is no relationship	
79.	The com	pound on dehydrogenation gives a	ket	one. The original compound is	
	1)	primary alcohol	2)	secondary alcohol	
	3)	tertiary alcohol	4)	carboxylic acid	
80.	Which is	the most easily liquifiable rare ga	s?		
	1)	Xe	2)	Kr	
	3)	Ar	4)	Ne	

				Tax all	14 447		1111
81.	Mesomeric	effect	involves	dela	ocalisat	tion	of

1) pi electrons

2) sigma electrons

3) protons

4) none of these

82. Which of the following has the maximum number of unpaired 'd' electrons?

1) Zn^{2+}

2) Fe 2+

3) Ni 3+

4) Cu+

83. One mole of which of the following has the highest entropy?

1) liquid nitrogen

2) hydrogen gas

3) mercury

4) diamond

1) $C_6H_5NH_2$

2) $C_6H_5NH_3$

 \cdot 3) C_6H_5OH

4) C₆H₅Cl

85. A complex compound in which the oxidation number of a metal is zero is

1) $K_4[Fe(CN)_6]$

2) $K_3[Fe(CN)_6]$

3) $[Ni(CO)_4]$

4) $\left[Pl\left(NH_{3}\right)_{4}\right]Cl_{2}$



86.		f at equilibrium the ve		I two moles of Cl_2 are taken in a closed bles of PCl_5 , the number of moles of PCl_3
	1)	5	2)	3
	3)	6	4)	4.5
87.	How ma	any optically active ster	eomers are pos	sible for butan-2, 3-diol?
	1)	1	2)	2
	3)	3	4)	4
88.	An octal	nedral complex is forme	d when hybrid	orbitals of the following type are involved
	1)	sp^3		$d sp^2$
	3)	d^2sp^3	4)	sp^2d^2
89.	For the	reaction $2HI_{(g)} \rightleftharpoons H_{2(g)}$	$(g) + I_{2(g)} - QKJ$, the equilibrium constant depends upon
	1)	temperature	2)	pressure
× -	3)	catalyst	4)	volume
90.	The ang	le strain in cyclobutane	e is	
		24044'		29 ⁰ 16'
	3)	19022'	4)	9 ⁰ 44'



91. The number of nodal planes present in σ^*s antibonding orbitals is

1) 1

2) 2

3) (

4) 3

92. Which of the following electrolytic solutions has the least specific conductance?

1) 0.02 N

2) 0.2 N

3) 2 N

4) 0.002 N

93. The overlapping of orbitals in benzene is of the type

1) sp - sp

2) p - p

3) $sp^2 - sp^2$

4) $sp^3 - sp^3$

94. The calculated bond order of superoxide ion (O_2^-) is

1) 2.5

2) 2

3) 1.5

4) 1

95. Which of the following can be measured by the Ostwald-Walker dynamic method?

- 1) Relative lowering of vapour pressure
- 2) Lowering of vapour pressure
- 3) Vapour pressure of the solvent
- 4) all of these

- **96.** *n*-propyl bromide on treating with alcoholic *KOH* produces

 1) propane

 2) propene
 - 3) propyne

- 4) propanol
- 97. Mercury is a liquid metal because
 - 1) it has a completely filled s-orbital
 - 2) it has a small atomic size
 - 3) it has a completely filled d-orbital that prevents d-d overlapping of orbitals
 - 4) it has a completely filled d-orbital that causes d-d overlapping
- **98.** A compound is formed by elements A and B. This crystallises in the cubic structure where the A atoms are at the corners of the cube and B atoms are at the body centres. The simplest formula of the compound is
 - 1) AB

2) A₆B

3) A_8B_4

- 4) AB₆
- 99. Anisole can be prepared by the action of methyl iodide on sodium phenate. The reaction is called
 - 1) Wurtz's reaction

2) Williamson's reaction

3) Fittig's reaction

- 4) Etard's reaction
- 100. Malleability and ductility of metals can be accounted due to
 - 1) the presence of electrostatic force
 - 2) the crystalline structure in metal
 - 3) the capacity of layers of metal ions to slide over the other
 - 4) the interaction of electrons with metal ions in the lattice

101. An ionic	compound is expected to have tetr	rahe	dral structure if r_+/r lies in the range of			
1)	0.414 to 0.732	2)	0.225 to 0.414			
3)	0.155 to 0.225	4)	0.732 to 1			
102. Among the following, which is least acidic?						
1)	phenol	2)	O-cresol			
3)	p-nitrophenol	4)	p-chlorophenol			
103. A ligand can also be regarded as						
1)	Lewis acid	2)	Bronsted base			
3)	Lewis base	4)	Bronsted acid			
104. The colo	ur of sky is due to					
1)	1) transmission of light					
2)	2) wavelength of scattered light					
3)	3) absorption of light by atmospheric gases					
4)	All of these		in the beautiful and the beaut			
105. Which of the following organic compounds answers to both iodoform test and Fehling's test?						
1)	ethanol	2)	methanal			
3)	ethanal	4)	propanone			



106. Helium	is used in balloons in place of h	nydroge	n because it is			
1)	incombustible	2)	lighter than hydrogen			
3)	radioactive	4),	more abundant than hydrogen			
107. The bas	ic principle of Cottnell's precip	itator i	s			
1)	Le-chatelier's principle		Marie and the second second second			
2)	peptisation		The State of the S			
3)	neutralisation of charge on co	lloidal	particles			
4)	scattering of light					
108. When ca	arbon monoxide is passed over	solid ca	ustic soda heated to 200°C, it forms			
1)	Na ₂ CO ₃	2)	$NaHCO_3$			
3)	HCOONa	4)	CH_3COONa			
109. $N_2 + 3H$	$H_2 \rightleftharpoons 2NH_3$ + heat. What is the	he effe	ct of the increase of temperature on the			
equilibr	ium of the reaction?					
1)	equilibrium is shifted to the left					
2)	equilibrium is shifted to the r	ight				
3)	equilibrium is unaltered					
4)	reaction rate does not change					
110. Hydroge	en gas is not liberated when the	followi	ing metal is added to dil. HCl			
1)	Ag	2)	Zn			
3)	Mg	4)	Sn			
	(Space for	Rough	Work)			

111. Consider the Born-Haber cycle for the formation of an ionic compound given below and identify the compound (Z) formed.

$$\begin{bmatrix} M_{(s)} \xrightarrow{\Delta H_1} M_{(g)} \xrightarrow{\Delta H_2} M_{(g)}^+ \\ \frac{1}{2} X_{2(g)} \xrightarrow{\Delta H_3} X_{(g)} \xrightarrow{\Delta H_4} X_{(g)}^- \end{bmatrix} \xrightarrow{\Delta H_5} Z$$

1) M+X-

2) $M^{-}X_{(s)}^{-}$

 $3) \cdot MX$

4) $M^+X_{(g)}^-$

112. In the brown ring test, the brown colour of the ring is due to

1) ferrous nitrate

- 2) ferric nitrate
- 3) a mixture of NO and NO2
- 4) nitrosoferrous sulphate

113. Amines behave as

1) Lewis acids

2) Lewis base

3) aprotic acid

4) neutral compound

114. Dalda is prepared from oils by

1) oxidation

2) reduction

3) hydrolysis

4) distillation

115. The chemical name of anisole is

1) Ethanoic acid

2) Methoxy benzene

3) Propanone

4) Acetone

116. The number of disulphide linkages present in insulin are

1) 1

2)

3 3)

4) 4

117. 80 g of oxygen contains as many atoms as in

1) 80 g of hydrogen

2) 1 g of hydrogen

3) 10 g of hydrogen

4) 5 g of hydrogen

118. Which metal has a greater tendency to form metal oxide?

1) Cr

3) Al 4) Ca

119. Identify the reaction that does not take place in a blast furnace.

- 1) $CaCO_3 \longrightarrow CaO + CO_2$ 2) $CaO + SiO_2 \longrightarrow CaSiO_3$
- 3) $2Fe_2O_3 + 3C \longrightarrow 4Fe + 3CO_2$ 4) $CO_2 + C \longrightarrow 2CO$

120. Waxes are esters of

- 1) glycerol
- 2) long chain alcohols
- 3) glycerol and fatty acid
- 4) long chain alcohols and long chain fatty acids