

Question Papers

ExamCode: RPSC_CH_CHEM

- The values of n and l quantum numbers for sub -Shell $3d$ are respectively :
 - 2 and 2
 - 3 and 2
 - 3 and 3
 - 2 and 3
- Magnetic orbital quantum number for azimuthal quantum 2 are:
 - 2, -1, 0
 - 2, 0, +1, +2
 - 2, -1, 0, +1, +2
 - +2, +1, -2, -1
- According to Hund's rule the number of unpaired electrons in the atoms of nitrogen ,oxygen and fluorine are respectively:
 - 7, 8, 9
 - 5, 6, 7
 - 9, 8, 7
 - 3, 2, 1
- The maximum possible similar quantum numbers of two electrons present in an orbital of an atom may be:
 - 4
 - 3
 - 2
 - 1
- The group having the same number of electrons is :

The group having the same number of electrons is :	
A.	$\text{Li}^+, \text{Na}^+, \text{K}^+$
B.	$\text{P}, \text{S}^{2-}, \text{Cl}^-, \text{Ar}$
C.	$\text{N}^{3-}, \text{O}^{2-}, \text{F}^-, \text{Ne}$
D.	$\text{F}^-, \text{Cl}^-, \text{O}_2^{2-}, \text{S}$
- Which of the following set of elements is not in the correct sequence according to long form of periodic table ?
 - B, C, N, O
 - Al, Si, P, S
 - Cr, Mn, Fe, Co
 - Cr, Ti, V, Mn
- which of the following electronic configuration does not belong to a d-block element?
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^1 4s^2$
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^2$
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2$
 - $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^1$
- The Values of atomic radii (in pm)of Na, Be, B and Mg lie in the range of 88 to 186,The value of atomic radii for B(in pm) is :
 - 186
 - 160
 - 111
 - 88

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9. Which of the following statement is not correct related to electronegativity of elements?
- 1) Pauling is used to measure electronegativity of elements
2) Fluorine is an element having maximum electronegativity
3) In general electronegativity of elements decreases from right to left in a period.
4) In the first group of elements electronegativity decreases from top to bottom
10. The correct order of first ionization enthalpy (ionization energy) among the following is .
- 1) $\text{Na} < \text{Al} < \text{Mg} < \text{Si}$
2) $\text{Na} < \text{Mg}$
3) $\text{Si} < \text{Al}$
4) None of these
11. The molecule having ionic as well as covalent bond between its atoms is :
- 1) KCN
2) H_2O
3) CHCl_3
4) $\text{C}_2\text{H}_5\text{OH}$
12. Which of the following molecule or ion has a coordinate bond?
- 1) NH_3
2) BF_3
3) OH^-
4) $[\text{Fe}(\text{CN})_6]^{3-}$
13. Which of the following shape is given to a molecule due to dsp^2 hybridization ?
- 1) Tetrahedral
2) Square planar
3) Octahedral
4) Square Pyramidal
14. The Correct order of increasing field strength of the ligands is :
- 1) $\text{F}^- < \text{Br}^- < \text{I}^- < \text{SCN}^-$
2) $\text{I}^- < \text{SCN}^- < \text{Br}^- < \text{F}^-$
3) $\text{I}^- < \text{Br}^- < \text{SCN}^- < \text{Cl}^-$
4) $\text{F}^- < \text{Br}^- < \text{SCN}^- < \text{Cl}^-$
15. The hybridization of chlorine atom in ClF_3 molecule is:
- 1) sp^2
2) sp^3
3) sp^3d
4) d^2sp^3
16. The bond order of C_2 is:
- 1) 1
2) 2
3) 3
4) 4
17. Which of the following element is not considered as a transition element?
- 1) Cu
2) Zn
3) Sc
4) Ag
18. The correct outermost electronic configuration of palladium atom is:
- 1) $5s^0 4d^{10}$
2) $5s^1 4d^9$
3) $5s^1 4d^{10}$
4) $5s^2 4d^8$
19. The set of elements belonging to first ,second and third transition series respectively ,out of the following is
- 1) Zr, Y, W
2) Fe Co, Cd
3) Ag, Cu, Pd
4) Zn, Cd, Hg

20. Eu^{2+} is a:
- | | |
|--------------------------|---------------------------|
| 1) Strong reducing agent | 2) Strong oxidising agent |
| 3) Weak reducing agent | 4) Weak oxidising agent |

21. Most Common oxidation state generally shown by actinoids is :

- | | |
|-------|-------|
| 1) +2 | 2) +3 |
| 3) +4 | 4) +5 |

22. Which of the Following pair of ions have same oxidation number of their central metal atoms?

A.	MnO_4^- , MnO_4^{2-}
B.	VO_2^+ , $\text{Cr}_2\text{O}_7^{2-}$
C.	MnO_4^- , CrO_4^{2-}
D.	CrO_4^{2-} , $\text{Cr}_2\text{O}_7^{2-}$

23. The state of hybridization of C in carbocation is:

- | | |
|-----------|------------|
| 1) sp^2 | 2) sp^3 |
| 3) sp | 4) sp^3d |

24. Which of the following is not an electrophile?

A.	BF_3
B.	NO_2^+
C.	$(\text{CH}_3)_3\text{N}$
D.	Cl^+

25. The C - C bond lengths in benzene is :

- | | |
|--|-----------|
| 1) 154 pm | 2) 134 pm |
| 3) 3 bonds of 154 pm and 3 bonds of 134 pm | 4) 139 pm |

26. Which of the following is not an aromatic compound?

A.	
B.	
C.	
D.	

27.

$$\text{C}_6\text{H}_6 + 3\text{Cl}_2 \xrightarrow[500\text{ K}]{\text{UV}} \text{C}_6\text{H}_6\text{Cl}_6$$

The above chemical reaction is an example of which of the following type of reaction ?

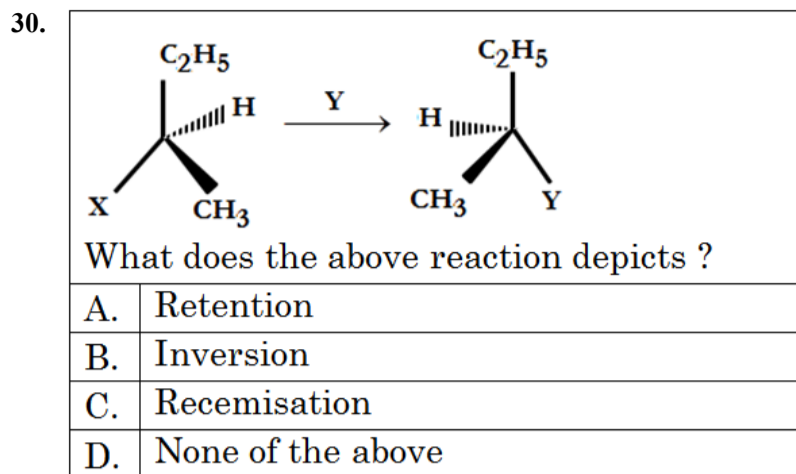
A.	Elimination reaction
B.	Addition reaction
C.	Substitution reaction
D.	Rearrangement reaction

28. Halogenation of alkane proceeds through which of the following intermediate ?

- | | |
|-----------------|----------------|
| 1) Free radical | 2) Carbocation |
| 3) Carbanion | 4) Carbene |

29. Identify the chiral molecule among the following molecules.

A.	
B.	
C.	
D.	CH ₃ -CH ₂ -CH ₂ -CH ₂ -Br



31. Which physical property is different in enantiomers ?

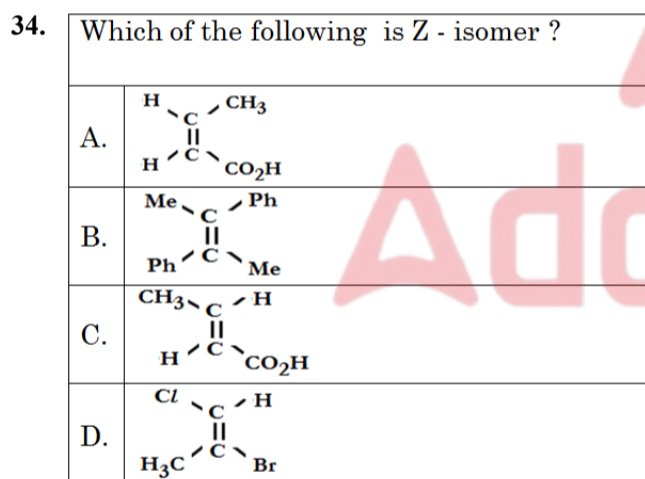
- 1) Direction of rotation of the plane of polarized light 2) Refractive index
3) Density 4) Melting point and boiling point

32. The most stable conformation of cyclohexane is :

- 1) Chair form 2) Boat form
3) Twist boat 4) Half chair

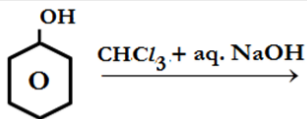
33. With which of the following compound the relative configuration D or L are related

- 1) Glycerol 2) Glycerol acid
3) Glyceraldehyde 4) Lactic acid

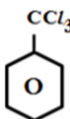
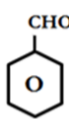
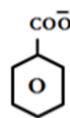
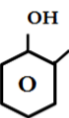


35. When CH_3CHO reacts with $\text{CH}_3\text{CH}_2\text{CHO}$ in presence of dilute NaOH then on heating which of the following product is not formed ?

A.	$\text{CH}_3 - \text{CH} = \text{CH} - \text{CHO}$
B.	$\text{CH}_3 - \text{CH} = \underset{\text{CH}_3}{\text{C}} - \text{CHO}$
C.	$\text{CH}_3 - \text{CH}_2 - \text{CH} = \underset{\text{CH}_3}{\text{C}} - \text{CHO}$
D.	$\text{CH}_2 = \text{CH} - \text{CH}_2 - \text{CH}_2 - \text{CHO}$

36.  $\xrightarrow{\text{CHCl}_3 + \text{aq. NaOH}}$

What is the product formed in the above reaction?

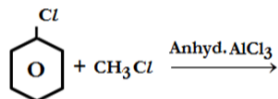
A. 	B. 
C. 	D. 

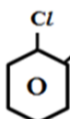

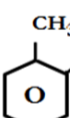
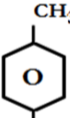
37.
$$\text{RCH}_2\text{COOH} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) X}_2 / \text{Red Phosphorus}} \text{R} - \underset{\text{X}}{\text{CH}} - \text{COOH}$$

The above reaction is known as

A.	MPV reduction
B.	HVZ reaction
C.	Haloform reaction
D.	Witting reaction

38. The major product formed in the reaction, is:



A. 	B. 
C. 	D. 

39.
$$\text{C}_6\text{H}_5\text{CHO} + \text{CH}_3\text{COCH}_3 \xrightarrow{\text{NaOH}} \text{C}_6\text{H}_5\text{CH} = \text{CHCOCH}_3$$

The above reaction is known as-

A.	Reformatsky reaction
B.	Hofmann elimination
C.	Claisen- Schmidt reaction
D.	Mannich reaction

55. Deficiency of which vitamin causes increased fragility of RBCs and muscular weakness ?
- 1) Vitamin K
2) Vitamin E
3) Vitamin B₆
4) Vitamin B₁₂
56. The Sugar moiety present in DNA molecule is:
- 1) β -D -2-deoxyribose
2) β -D -ribose
3) β -D -Glucopyranose
4) β -D-fructofuranose
57. An example of globular protein is
- 1) Insulin
2) Myosin
3) Keratin
4) Protein present in hair, wool and silk
58. Which one of the following is not an essential amino acid?
- 1) Valine
2) Leucine
3) Alanine
4) Lysine
59. Which hormone suppresses ovulation ?
- 1) Testosterone
2) estrogen
3) Progesterone
4) thyroxine
60. The weak antiseptic for eyes is :
- 1) tincture of Iodine
2) Boric acid
3) Iodoform
4) chlorine
61. Disinfectant among the following is
- 1) Soframicine
2) 1% solution of phenol
3) furacine
4) 0.2% solution of phenol
62. The antibiotic having bactericidal effect is:
- 1) penicillin
2) Tetracycline
3) Erythromycin
4) chloramphenicol
63. Which of the following is not a broad spectrum antibiotic
- 1) Ampicillin
2) Amoxicillin
3) Penicillin G
4) Chloramphenicol
64. Acetyl Salicylic acid is
- 1) Dettol
2) Chloroquine
3) Aspirin
4) Ampicillin
65. If the dispersed phase and dispersion medium are two liquids then the colloid formed is known as :
- 1) Sol
2) Emulsion
3) Foam
4) Gel
66. Dispersion medium and dispersed phase in butter are respectively :
- 1) Solid ,Liquid
2) Liquid, Solid
3) Solid ,Gas
4) Solid ,Solid
67. Colloid formations not possible when dispersed phase and dispersion medium are respectively :
- 1) Solid ,Solid
2) Solid ,Liquid
3) Liquid, Liquid
4) Gas, Gas

83. Oxidation reaction occurring in Daniell cell is :

A.	$\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu(s)}$
B.	$\text{Zn(s)} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$
C.	$\text{Zn}^{2+} + 2\text{e}^- \rightarrow \text{Zn(s)}$
D.	$\text{Cu(s)} \rightarrow \text{Cu}^{2+} + 2\text{e}^-$

84. In the cell reaction ,
 $\text{Zn(s)} + \text{Cu}^{2+}(\text{aq}) \rightarrow \text{Zn}^{2+}(\text{aq}) + \text{Cu(s)}$,
 if $E_{\text{R}}^{\circ} = 0.34\text{V}$ and $E_{\text{L}}^{\circ} = -0.76\text{V}$,
 then E_{cell}° will be -

A.	-0.42 V
B.	1.1 V
C.	0.42 V
D.	-1.1 V

85. The Unit of specific conductance is :

- 1) ohm
 2) ohm cm
 3) $\text{ohm}^{-1} \text{cm}^{-1}$
 4) ohm^{-1}

86. $Q = It$, is related with :

- 1) Kohlrausch's Law
 2) Ostwald's Law
 3) Faraday's Law
 4) Daniel's Law

87. For a strong electrolyte, the conductivity of the solution on dilution:

- 1) Increases
 2) Decreases
 3) Remains constant
 4) Become infinite

88. Amalgam of mercury with sodium is a solution of :

- 1) Solid in solid
 2) Liquid in solid
 3) Solid in liquid
 4) Liquid in liquid

89. A mass of the solute present in 100 ml of the solution is known as

- 1) Mass percentage
 2) Volume percentage
 3) Mass by volume percentage
 4) Parts per million

90. If 74.5 g of KCl is dissolved in 1Kg of water ,then the molality of the solution will be

- 1) 1 m
 2) 10 m
 3) 0.1 m
 4) 0.01 m

91. if $\Delta H > 0$, then the dissolution process is:

- | | |
|---------------|----------------|
| 1) Exothermic | 2) Endothermic |
| 3) Adiabatic | 4) Isothermal |

92. Two solutions having same osmotic pressure at a given temperature, are called :

- | | |
|-----------------------|-------------------------|
| 1) Isobaric solutions | 2) Isothermal solutions |
| 3) Isotonic solutions | 4) Isotopic solutions |

93. "Partial vapour pressure of each volatile component in the solution is directly proportional to its mole fraction" This Law is known as:

- | | |
|-----------------|-----------------|
| 1) Dalton's Law | 2) Hess's Law |
| 3) Henry's Law | 4) Raoult's Law |

94. Ratio of carbon, oxygen and hydrogen atoms in a molecule of fructose is :

- | | |
|--------------|--------------|
| 1) 1 : 1 : 2 | 2) 1 : 2 : 1 |
| 3) 2 : 1 : 1 | 4) 2 : 3 : 2 |

95. Errors that depend on constant reasons and recur in all observations are called :

- | | |
|-------------------------|------------------------|
| 1) Indeterminate errors | 2) Determinate errors |
| 3) Random errors | 4) Unsystematic errors |

96. Which of the following indicator is used in complex metric titrations?

- | | |
|--------------------|------------------|
| 1) Phenolphthalein | 2) Methyl orange |
| 3) EDTA | 4) Iodine |

97. A cation exchanger consists of :

- | | |
|--------------------------------------|--|
| 1) Polymeric anion and active cation | 2) Polymeric cation and active anion |
| 3) Active cation and active anion | 4) Polymeric cation and inactive anion |

98. Which of the following is not a software ?

- | | |
|-------------------|------------------|
| 1) Microsoft word | 2) Adobe reader |
| 3) Pendrive | 4) Google Chrome |

99. The output device out of the following is :

- | | |
|--------------|------------|
| 1) Key board | 2) Mouse |
| 3) Pendrive | 4) Monitor |

100. Device that is used in the bank to read the code number on check is :

- | | |
|---------|------------|
| 1) OMR | 2) OCR |
| 3) MICR | 4) Scanner |