



Standard 12

CHEMISTRY

Part - I

Time: 1.30 Hours

Marks: 50

I. Choose the correct answer

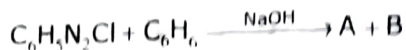
10×1=10

- 1) A complex in which the oxidation number of the metal is zero is
 - a) $K_4[Fe(CN)_6]$
 - b) $[Fe(CN)_3(NH_3)_3]$
 - c) $[Fe(CO)_5]$
 - d) both (b) and (c)
- 2) Which of the following is paramagnetic in nature
 - a) $[Zn(NH_3)_4]^{2+}$
 - b) $[CO(NH_3)_6]^{3+}$
 - c) $[Ni(H_2O)_6]^{2+}$
 - d) $[Ni(CN)_4]^{2-}$
- 3) A magnetic moment of 4.89 BM will be shown by one among the following
 - a) $TiCl_4$
 - b) $[COF_6]^{3-}$
 - c) $[Ni(CN)_4]^{2-}$
 - d) $[Cu(NH_3)_4]^{2+}$
- 4) While charging lead storage battery
 - a) $PbSO_4$ on cathode is reduced to Pb
 - b) $PbSO_4$ on anode is oxidised to PbO_2
 - c) $PbSO_4$ on anode is reduced to Pb
 - d) $PbSO_4$ on cathode is oxidised to Pb
- 5) Among the following cells

I) Leclanche cell	II) Nickel - cadmium cell
III) Lead storage battery	IV) Mercury cell primary cells are
a) I and IV	b) I and III
	c) III and IV
	d) II and III
- 6) Which of the following amines does not undergo acetylation?
 - a) t-butylamine
 - b) ethylamine
 - c) diethylamine
 - d) triethylamine
- 7) Which one of the following will not undergo Hofmann bromide reaction
 - a) $CH_3CONHCH_3$
 - b) $CH_3CH_2CONH_2$
 - c) CH_3CONH_2
 - d) $C_6H_5CONH_2$
- 8) Secondary nitro alkanes react with nitrous acid to form
 - a) red solution
 - b) blue solution
 - c) green solution
 - d) yellow solution
- 9) The product formed by the reaction an aldehyde with a primary amine
 - a) carboxylic acid
 - b) aromatic acid
 - c) Schiff's base
 - d) ketone
- 10) How many faradays of electricity are required for the following reaction to occur $MnO_4^- \rightarrow Mn^{2+}$
 - a) 5 F
 - b) 3 F
 - c) 1 F
 - d) 7 F

II. Answer any five questions: [Q.No: 15 is compulsory]

- 11) What is crystal field stabilization energy (CFSE)?
- 12) What are the limitations of VB theory? (any two)
- 13) Write short notes on carbylamine reaction?
- 14) Write notes on Schotten - Baumann reaction?
- 15) Identify A and B



- 16) State Kohlrausch law.
- 17) Define Equivalent conductance.
- 18) What are the Factors affecting electrolytic conductance [Any two]

Part - III

III. Answer any five questions: [Q.No: 25 is compulsory]

5×3=15

- 19) What is linkage isomerism? Explain with an example.
- 20) State Faraday's Laws of electrolysis.
- 21) Write a note on Sacrificial protection.
- 22) Write notes on Gabriel Phthalimide Synthesis.
- 23) Classify the following ligands based on the number of donor atoms.
 - a) NH_3
 - b) en
 - c) OX^{2-}
 - d) Pyridine
- 24) Define anode and cathode
- 25) Write the IUPAC names for the following complexes
 - i) $[CO(en)_2Cl_2]Cl$
 - ii) $[Cr(NH_3)_3(H_2O)_3]Cl_3$
- 26) How is chloropicrin prepared?

Part - IV

IV. Answer all the questions:

3×5=15

- 27) a) Based on VB theory explain why $[Cr(NH_3)_6]^{3+}$ is paramagnetic while $[Ni(CN)_4]^{2-}$ is diamagnetic

(OR)

- b) Describe the construction of Daniel cell. Write the cell reaction.
- 28) a) How will you distinguish between primary secondary and tertiary aliphatic amines.

(OR)

- b) Write the postulates of werner's theory.
- 29) a) Derive an expression for Nernst equation.

(OR)

- b) Write short notes on the following
 - i) Mustard oil reaction
 - ii) Sandmeyer reaction.
