

SSR Degree and PG College(A)
Department of Chemistry
Semester III- Synthesis of Organic compounds
Internal I Question Bank

I. Multiple Choice Questions

1. Which of the following is a tetrahedral complex ()
 A) $[\text{PtCl}_4]^{-2}$ B) $[\text{Ni}(\text{CO})_4]$ C) $[\text{Cu}(\text{NH}_3)_4]^{+2}$ D) $[\text{Co}(\text{NH}_3)_6]$
 Answer: B
2. Which complex is square planar ()
 A) $[\text{Ni}(\text{Cl})_4]$ B) $[\text{Ni}(\text{CO})_4]$ C) $[\text{PtCl}_4]^{-2}$ D) $[\text{CoF}_6]$
 Answer: C
3. Werners theory explains ()
 A) Organic reactions B) Co-ordination compounds
 C) Electrolysis D) Polymerization
 Answer: B
4. Which rule is used to explain the stability of metal carbonyls ()
 A) Octet rule B) Octet rule C) Hunds rule D) Aufbau principle
 Answer: A
5. $\text{Ni}(\text{CO})_4$ is known as ()
 A) Nickel chloride B) Nickel carbonyl C) Nickel oxide D) Nickel Nitrate
 Answer: B
6. $\text{Fe}(\text{CO})_5$ contains how many co ligands ()
 A) 3 B) 4 C) 5 D) 6
 Answer: C
7. Hydrolysis of Nitriles gives ()
 A) Alcohols B) Aldehydes C) Carboxylic acids D) Amine
 Answer: C
8. Carbonation of Grignard reagent produces ()
 A) Ketone B) Carboxylic acid C) Ester D) Alcohol
 Answer: B
9. Hell – Volhard Zelensky reaction is used for ()
 A) Nitration B) Halogenation of carboxylic acids
 C) Sulphonation D) Reduction
 Answer: B
10. Schmidt reaction is used for ()
 A) Reduction B) Degradation of acids C) Oxidation D) Halogenation
 Answer: B
11. Esterification is the reaction b/w ()
 A) Acid + Alcohol B) Acid + Amine C) Alcohol + Aldehyde D) Ketone + Alcohol
 Answer: A
12. Arndt – Eister reaction is used to ()
 A) Increase carbon chain by one carbon B) Reduce acids
 C) From Alcohol D) From ketones
 Answer: A
13. Nitro alkanes react with HNO_2 gives ()
 A) Alcohols B) Nitrous acid derivates C) Esters D) Ketons

Answer: B

14. Nitrobenzene on reduction forms

()

A) Benzene

B) Aniline

C) Phenol

D) Benzoic acid

Answer: B

15. Co ordination number means

()

A) Oxidation State

B) No.of ligands attached to metal

C) Atomic number

D) Molecular weight

Answer: B

16. Which is an Octahedral complex

()

A) $[\text{Co}(\text{NH}_3)_6]^{+3}$

B) $[\text{Ni}(\text{CO})_4]$

C) $[\text{PtCl}_4]^{-2}$

D) $[\text{NiCl}_4]^{-2}$

Answer: A

17. Which reaction converts acids in to esters

()

A) Esterification

B) Hydrogenation

C) Halogenation

D) Nitration

Answer: A

18. Organo metallic compounds contain

()

A) Metal – Carbon bond

B) Metal – Oxygen bond

C) Metal – Hydrogen bond

D) Carbon – Carbon bond

Answer: A

19. Reduction of carboxylic acids gives

()

A) 1° alcohol

B) 2° Alcohol

C) Aldehyde only

D) Ketone

Answer: A

20. Which of the following is an aromatic nitro compound

()

A) Nitro ethane

B) Nitro benzene

C) Nitro Methane

D) Nitro propane

Answer: B

II. Fill in the Blanks

1. $\text{Ni}(\text{CO})_4$ is called _____.

Answer: Nickel carbonyl

2. The geometry of $[\text{Ni}(\text{CO})_4]$ is _____.

Answer: Tetrahedral

3. _____ theory explains coordination compounds.

Answer: Werner's

4. The stability of metal carbonyl is explained by the _____ rule.

Answer: 18-electron

5. hydrolysis of nitrile produces _____.

Answer: Carboxylic acid

6. Carbonation of Grignard reagent gives _____.

Answer: Carboxylic acid

7. The reaction of acid with alcohol forms an _____.

Answer: Ester

8. Hell-volhard-zelensky reaction involves _____.

Answer: α -halogenation of carboxylic acids

9. Arndt – Eistert synthesis increase the carbon chain by _____ carbon atom.

Answer: One

10. Reduction of nitro benzene gives _____.

Answer: Aniline

11. $\text{Fe}(\text{CO})_5$ contains _____ carbon monoxide ligands.

Answer: Five

12. $[\text{PtCl}_4]^{-2}$ is a _____ complex.

Answer: Square planar

13. $[\text{Co}(\text{NH}_3)_6]^{+3}$ is an _____ complex.

Answer: Octahedral

14. Organo metallic compounds contains a _____ bond.

Answer: Metal-carbon

15. Ester hydrolysis can occur in _____ and _____ media.

Answer: Acidic and alkaline

16. Schmidt reaction is a _____ reaction.

Answer: Degradation

17. The functional group present in carboxylic acid is _____.

Answer: COOH (carboxyl group)

18. Nitro benzene is an _____ nitro compound.

Answer: Aromatic

19. The coordination number of $[\text{Co}(\text{NH}_3)_6]^{+3}$ is _____.

Answer: 6

20. Reduction of acetaldehyde gives _____ alcohol.

Answer: Ethyl (ethanol)

III. Descriptive Questions

1) Write the IUPAC names of i) $[\text{Fe}(\text{CN})_6]$ ii) $[\text{Co}(\text{NH}_3)_6]^{+3}$

2) Write EAN rule?

3) What are organometallic compounds?

4) Draw the structures of $[\text{Fe}(\text{CO})_5]$ & $[\text{Ni}(\text{CO})_4]$.

5) Write any two preparation methods of R-Mg-X ?