

Chemistry (Subjective)

(For All Sessions)

(GROUP-I)

Rwp-12-1-23

Time: 2:40 Hours

Section- I

Marks:68

2- Write short answers of any eight parts from the following:

(2 x 8 = 16)

- i. Why is CO_2 a gas while SiO_2 is a solid at room temperature?
- ii. What is chemical Garden?
- iii. How does borax ionize in water?
- iv. How can you prepare the m-chloronitrobenzene in two steps from benzene?
- v. Differentiate between isolated and fused aromatic hydrocarbon?
- vi. Write down the structures of following compounds:
a) Benzoic Acid b) Benzaldehyde
- vii. Differentiate between thermosetting and thermoplastic polymers.
- viii. What is saponification number?
- ix. Discuss the effect of temperature on enzymes.
- x. What is Chemical Oxygen Demand (COD)?
- xi. How is oil spillage affecting the marine life?
- xii. Write down the human activities which lead to produce SO_x .

3- Write short answers of any eight parts from the following:

(2 x 8 = 16)

- i. Write the functional group with example of alkanal and alkanol.
- ii. What do you know about position isomerism?
- iii. How will you bring out the following conversions?
(a) Acetic acid to ethane (b) Methane to nitro methane
- iv. Starting from ethene prepare:
(i) Ethane (ii) Ethylene glycol
- v. Give the reactivity order of alkane, alkene and alkyne.
- vi. How does Grignard reagent react with CO_2 ?
- vii. Write two methods for the preparation of alkyl halides from alcohols.
- viii. Write the names of any four non woody raw material used in paper industry.
- ix. What are the macro nutrients?
- x. Write any four similarities of oxygen with sulphur.
- xi. Why does aqua regia dissolve gold?
- xii. P_2O_5 is powerful dehydrating agent. Prove by giving two examples.

4- Write short answers of any six parts from the following:

(2 x 6 = 12)

- i. Under what conditions does Al corrode?
- ii. What is central metal atom?
- iii. What is coordination sphere?
- iv. How is phenol prepared from chlorobenzene?
- v. How will you distinguish between methanol and ethanol?
- vi. How is benzene prepared from phenol?
- vii. Give general mechanism of base catalysed addition reaction of carbonyl compounds.
- viii. What is fehling solution test?
- ix. How is Acetamide prepared from acetic acid?

Section- II

(8 x 3 = 24)

NOTE : Answer any three questions from the following:

- 5.(a) Discuss the position of Hydrogen with Group IV-A elements. (4+4)
- (b) Write down commercial preparation of sodium by Down's cell. (4+4)
- 6.(a) Describe Backmann's method for the preparation of Bleaching powder. (4+4)
- (b) What is setting of cement? Discuss the reactions taking place between 1 - 7 days. (4+4)
- 7.(a) Describe two important sources of organic compounds. (2+2)
- (b) What is meant by electrophilic substitution reaction? Explain Friedel-crafts alkylation with mechanism. (1+3)
- 8.(a) Prepare alkanes from:
i) alkyl halides (Two methods)
ii) Kolbe's electrolysis with mechanism (2+2+4)
- (b) Explain the mechanism of E1 reaction in detail. (2+2+4)
- 9.(a) Describe with mechanism of aldol condensation reaction. Why does formaldehyde not give this reaction. (3+1+4)
- (b) Write down the mechanism of reaction between acetic acid and ethanol. (3+1+4)