

**GSM/M-20****1622****CHEMISTRY**

(Organic Chemistry)

Paper–XIII-CH-206

Time Allowed : 3 Hours]

[Maximum Marks : 32

**Note** : Attempt **five** questions in all, selecting at least **two** questions from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

**Compulsory Question**

1. (i) Prepare Ethylamine by Gabriel Phthalimide synthesis.
- (ii) What is diazotisation? Write its mechanism.
- (iii) Which of the following molecules will not absorb in IR region and why?



- (iv) pH of 3 to 4 is required for reaction of Carbonyl compounds with Ammonia derivatives. Why?

2×4=8

**UNIT-I**

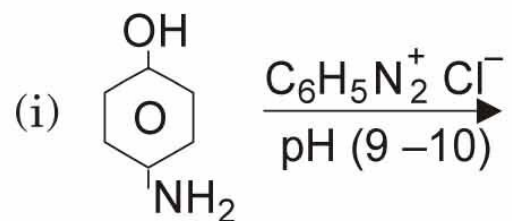
2. (a) How IR spectroscopy is used to distinguish intermolecular and intramolecular H-Bonding?

- (b) What are stretching vibrations?
- (c) Write the factors on which intensity of IR absorption band depends.  $2 \times 3 = 6$
3. (a) Explain the regions of IR spectrum.
- (b) How can you distinguish Phenyl acetate and Methyl benzoate by IR spectroscopy?
- (c) How inductive effect affects the absorption frequency of functional group? Explain with example.  $2 \times 3 = 6$
4. (a) Explain the following :
- (i) Aniline is weaker base than ammonia.
- (ii) Ethylamine is more basic than Aniline.
- (b) Prepare Aniline from :
- (i) Benzamide      (ii) Nitrobenzene.
- (c) Write Carbylamine reaction.  $2 \times 3 = 6$
5. (a) Explain Hinsberg method for the separation of  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  amines.
- (b) Write the reaction of  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  amines with Nitrous acid ( $\text{HNO}_2$ ).  $3 \times 2 = 6$

## UNIT-II

6. (a) Aromatic diazonium salts are more stable than aliphatic diazonium salts. Explain.
- (b) Convert Arene diazonium salt into Arylhydrazine.
- (c) (i) Prepare 1, 3, 5-tribromobenzene from aniline.
- (ii) Prepare bromobenzene from Benzene diazonium salt.  $2 \times 3 = 6$
7. (a) Aldehydes having B.Pt. above 373k can not be prepared by  $K_2Cr_2O_7$  and  $KMnO_4$  oxidation. Write one method for their preparation.
- (b) Write the prep. of Ketones from acid chloride.
- (c) Explain the acidic nature of  $\alpha$ - Hydrogen in Aldehydes and Ketones.  $2 \times 3 = 6$
8. (a) What is Aldol condensation? Write its mechanism in basic medium.
- (b) Write the product formed by the reaction of Formaldehyde (HCHO) with  $NH_3$ .
- (c) Benzoin condensation is catalysed by  $CN^-$  ion and not by  $OH^\ominus$  ion. Explain.  $2 \times 3 = 6$

9. (a) Complete the reactions :



(b) Write Cannizaro reaction with mechanism.

(c) How can you distinguish Acetaldehyde from Acetone? Write one test with reaction.  $2 \times 3 = 6$