

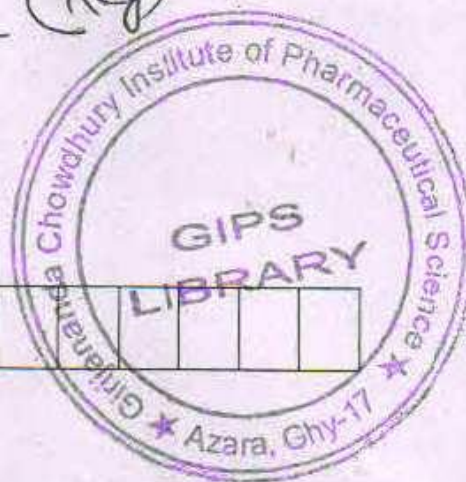
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2017

B.Pharm. 3rd Semester End-Term Examination

**PHARMACEUTICAL CHEMISTRY - III
(ORGANIC CHEMISTRY - II)**

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and *any six* questions from the rest.

1. Answer the following questions : (10 × 1 = 10)
- (a) Which of the following compounds is most basic?
- (i) Aniline
 - (ii) Benzylamine
 - (iii) Acetanilide
 - (iv) P-nitro aniline
- (b) Phenol is acidic because of
- (i) Resonance
 - (ii) Electromeric effect
 - (iii) Inductive effect
 - (iv) Peroxide effect

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- (c) Which of the following will undergo Aldol condensation?
- (i) Acetone
 - (ii) Benzaldehyde
 - (iii) Benzoic acid
 - (iv) Benzophenone
- (d) Which of the following is not a carboxylic acid?
- (i) Malonic acid
 - (ii) Acetic acid
 - (iii) Picric acid
 - (iv) Adipic acid
- (e) Carbylamine Test is given by
- (i) Primary amines
 - (ii) Secondary amines
 - (iii) Tertiary amines
 - (iv) None of these

- (f) Benzene undergoes substitution reaction more easily than addition reaction because
- It has a cyclic structure
 - It has three double bonds
 - It has six hydrogen atoms
 - There is delocalization of electrons
- (g) Preparation of a diazonium salt from a primary aromatic amine is known as
- Coupling reaction
 - Sandmeyer reaction
 - Diazotization
 - Corey-House synthesis
- (h) Anthracene undergoes electrophilic substitution reaction mainly at
- C-1
 - C-2
 - C-9
 - C-1 and C-2
- (i) The reagent NBS is used for
- Preparing Oilman reagents
 - Preparing Grignard reagents
 - Preparing alkenes out of alkyl halides
 - Bromination of allylic position

(j) Which reaction below is an elimination?

- (i) Hydroboration
- (ii) Oxymercuration
- (iii) Hydrogenation
- (iv) Dehydrohalogenation

2. Justify the following comments (*any three*):

(3 × 5 = 15)

- (a) Pyridine is aromatic.
- (b) Aniline is less basic than methylamine.
- (c) Phenol is more acidic than ethyl alcohol.
- (d) Benzoic acid is stronger than acetic acid.
- (e) The long chain monocarboxylic acids are commonly called fatty acids.

3. Write short note on any three of the following :

(3 × 5 = 15)

- (a) Diazotization
- (b) Haworth synthesis
- (c) Grignard reagents
- (d) Stereo specific and stereo selective reaction

4. Answer *any two* questions : (2 × 7.5 = 15)

- (a) Write the reaction and reaction mechanism of Sandmeyer Reaction.
- (b) Write the reaction and reaction mechanism of Cannizzaro Reaction.
- (c) Write the reaction and reaction mechanism of Reformatsky Reaction.

5. Answer *any three* questions from the following : (3 × 5 = 15)

- (a) What is Huckel rule? Write the structure of two compounds that follows this rule.
- (b) Explain the effect of substituents on basicity of aromatic amines.
- (c) Explain how electron withdrawing substituents (Cl, Br, F, OH, CN) increase the acidity?
- (d) Explain Hinsberg Test.

6. Answer *any three* questions from the following : (3 × 5 = 15)

- (a) How will you distinguish between ethylamine, diethylamine and triethylamine?
- (b) Explain Hofmann's Rearrangement with mechanism.
- (c) How will you distinguish between acetic acid and acetone?
- (d) How will you distinguish between formaldehyde and acetaldehyde?

7. Answer *any two* questions of the following :
(2 × 7.5 = 15)

(a) Explain nucleophilic and electrophilic addition reaction of α, β -unsaturated carbonyl compounds.

(b) Explain stereochemistry of E2 reaction.

(c) Explain neighbouring group effect in intranucleophilic attack. Describe syn- and anti-addition with example.

8. Answer *any two* questions of the following :
(2 × 7.5 = 15)

(a) Explain the structure and nomenclature of amines with suitable examples.

(b) Discuss the Resonance energy of benzene.

(c) Write the reaction and reaction mechanism of Friedal-Craft alkylation with its limitation (drawbacks).

9. Answer *any two* questions of the following :
(2 × 7.5 = 15)

(a) Benzene undergoes electrophilic substitution reaction rather than electrophilic addition reaction – Explain.

(b) Explain Hell-Volhard-Zelinsky reaction.

(c) Write a note on organic reagents used in different synthesis.