



Name :

Roll No. :

Invigilator's Signature :

**CS/B.PHARM (N)/SEM-3/PT-304/2012-13
2012**

**PHARMACEUTICAL CHEMISTRY
(Organic Chemistry)**

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

i) In electrophilic aromatic substitution reaction, which of the following is deactivating but *o*-/*p*- directing ?

- a) NH₂
- b) OH
- c) Cl
- d) NO₂

3072 (N)

[Turn over



- x) Phenol and its derivatives are used
- in alcoholic beverages
 - as moth repellent
 - as anaesthetic
 - in antiseptic.
- xi) When naphthalene is treated with succinic anhydride it forms
- Naphthol
 - Phenanthrene
 - Anthracene
 - None of these.
- xii) The reaction in which aniline is treated with glycerol to form quinoline is known as
- Skraup synthesis
 - Bischler-Nepieralski synthesis
 - Killiani-Fischer synthesis
 - None of these.
- xiii) When thiophene undergoes Friedel-Craft Acylation reaction, it forms
- 2-acetyl thiophene
 - 4-acetyl thiophene
 - 6-acetyl thiophene
 - all of these.



GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. How pyridine can be converted to (a) pyridine-2-sulphonic acid, (b) piperidine ? $2 \frac{1}{2} + 2 \frac{1}{2}$
3. How can you reduce chain length of monosaccharides ? Explain your answer with suitable example.
4. Write down the different reduction reactions of nitrobenzene.
5. Write a short note on osazone reaction.
6. Explain why Pyrrole is less basic than pyridine.
7. Explain the mechanism of Nitration of Benzene.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

8. a) Define and classify carbohydrate with appropriate example.
- b) Show the following reactions of monosaccharides :
 - i) Effect of HNO_3
 - ii) Effect of sulphuric acid
 - iii) Effect of reducing agents
 - iv) Conversion into epimers.
- c) Write a short note on mutarotation and anomeric structures of glucose. $3 + 8 + 4$



9. a) Why benzene ring undergoes electrophilic aromatic substitution ? Explain briefly.

b) Show the mechanism of nitration and sulphonation reaction of aromatic compounds.

c) What are the effects of activating and deactivating groups on electrophilic aromatic substitution reactions ? Explain with necessary examples.

d) Write down the differences between S_N1 and S_N2 reactions. 2 + 5 + 5 + 3

10. Write briefly about any three of the following : 3 × 5

a) Paal-Knorr reaction

b) Fischer-Indole synthesis

c) Skraup's synthesis

d) Bischler-Bapieralski reaction

e) Pyridine synthesis.

11. What is polynuclear aromatic hydrocarbon ? How will you separate naphthalene from coal tar ? What is chloramine-T and Alizarin ? What is Bucherer reaction ? Explain the reduction of nitrobenzene. 1 + 3 + 3 + 4 + 4



12. a) Discuss on the Hantzsch-Widman nomenclature for heterocyclic compounds.
- b) Write a short note on nomenclature of the fused ring heterocyclic compounds.
- c) Draw the structures with proper numbering any *five* :
- | | |
|-----------------|---------------|
| i) Isoquinoline | ii) Cinnoline |
| iii) Furan | iv) Imidazole |
| v) Pyrazine | vi) Indole. |
- 5 + 5 + 5
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