Code No.

Symbol Number: _____ Invigilator's Sign: _____ Superintendent's Sign: _____

Symbol No. in Words: _____

Faculty: Medicine and Allied Health Sciences **Level: Bachelor** **Year/Part: II/I**

Program: Bachelor of Pharmacy **Level: Bachelor** **F.M.: 50**

Subject: Organic Chemistry II (BP 303) **Time: 3 Hours** **P.M.: 25**

i Answers should be given by filling the Objective Answer Sheet.

Ii Rough can be done in the main answer sheet

Iii Maximum time of 20 minutes within the total time is given for this group.

Group A (Multiple Choice Questions) **[10×1=10]**

1. For the two statements given below, analyse for the following:
   (i) Pyridine and Pyrrole both are weak bases, but pyridine is much more basic than pyrrole.
   (ii) Lone pair associated with nitrogen in Pyridine is entirely with nitrogen and not delocalised into the aromatic π system, whereas in Pyrrole unshared pair belonging to nitrogen must be added to the 4π e- of 2 double bonds and thus is delocalised into the aromatic π system.
   a. Only (i) is true
   b. Only (ii) is true
   c. Both (i) and (ii) are true and (ii) is the correct explanation of (i)
   d. Both (i) and (ii) are true but (ii) is not the correct explanation of (i)
2. Which heteroatom present in thiophene?
   a. Nitrogen
   b. Silicon
   c. Oxygen
   d. Sulphur
3. A chiral center is typically:
   a. A carbon atom with four different substituents
   b. A carbon atom with two identical substituents
   c. Any atom in a molecule
   d. A double-bonded carbon atom
4. What is the product obtained when acetaldehyde is treated with methylenetriphenylphosphorane?
   a. Propene
   b. Propane
   c. 1-butene
   d. 2-butene
5. When 1-butene is treated with HBr, the product obtained follows:
   a. Markovnikov's Rule
   b. Antimarkovnikov's Rule
   c. Saytzeff's Rule
   d. Hofmann Rule
6. Which of the following is the correct mechanism for an E1 reaction?
   a. Concerted removal of HX and formation of alkene
   b. Removal of leaving group to form carbocation, followed by deprotonation
   c. Deprotonation to form carbocation, followed by removal of leaving group
   d. Concerted removal of H and leaving group, formation of alkene
7. An SN2 reaction results in:
   a. Racemization
   b. Retention of configuration
   c. Inversion of configuration
   d. No change in stereochemistry
8. Mutarotation in glucose results in:
   a. Change in color
   b. Change in melting point
   c. Change in optical rotation
   d. Change in chemical structure
   e.
9. Maltose is a:
   a. Monosaccharide
   b. Disaccharide
   c. Oligosaccharide
   d. Polysaccharide
10. Essential fatty acids are:
    a. Linoleic acid and linolenic acid
    b. Oleic acid and stearic acid
    c. Palmitic acid and myristic acid
    d. Arachidonic acid and docosahexaenoic acid

Multiple Choice Questions' Answer Sheet

Code No. _____ Marks Secured: _____

Corrected Fill Ⓐ ● Ⓒ Ⓓ

Incorrected Fill Ⓐ Ⓑ ● ✓Ⓓ

In Words: _____

Examiner's Sign: _____ Date: _____

Scrutinizer's Marks: _____

In Words: _____

Scrutinizer's Sign: _____ Date: _____

1. Ⓐ Ⓑ Ⓒ Ⓓ	6. Ⓐ Ⓑ Ⓒ Ⓓ
2. Ⓐ Ⓑ Ⓒ Ⓓ	7. Ⓐ Ⓑ Ⓒ Ⓓ
3. Ⓐ Ⓑ Ⓒ Ⓓ	8. Ⓐ Ⓑ Ⓒ Ⓓ
4. Ⓐ Ⓑ Ⓒ Ⓓ	9. Ⓐ Ⓑ Ⓒ Ⓓ
5. Ⓐ Ⓑ Ⓒ Ⓓ	10. Ⓐ Ⓑ Ⓒ Ⓓ

MANMOHAN TECHNICAL UNIVERSITY

Office of the Controller of Examinations

Budiganga- 4, Morang, Koshi Province Nepal

Faculty: Medicine and Allied Health Sciences **Year/Part: II/I**

Program: Bachelor of Pharmacy **Level: Bachelor** **F.M.: 50**

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- ✓ *Group A contains Multiple Choice Questions of 5 marks.*
- ✓ *Candidates are required to give their answers in their own words as far as practicable.*
- ✓ *The figures in the margin indicate Full Marks.*
- ✓ *Assume suitable data if necessary.*

Group B (Problem-Based Question) **[1×10=10]**

1. Discuss the concept of aromaticity in indole and quinoline. Explain how the presence of the nitrogen atom affects the aromaticity and reactivity of these heterocycles.

Group C (Long Answer Questions: Attempt Any Four) **[4×5=20]**

2. Write the SN1 and SN2 reactions of alkylhalides and explain with its kinetics and order of reactivity and stereochemistry?
3. Write the following named reaction with the mechanism.
   a. Mannich Reaction
   b. Benzoin condensation
   c. Perkin Condensation
   d. Aldol condensation
4. Compare the reactivity and basicity of pyrrole with pyridine.
5. Explain the structure of Glucose.
6. Describe the formation of a peptide linkage between two amino acids and its characteristics. Also explain the significance of peptide bonds in protein formation.

Group D (Write Short Notes: Any Five) **[5×2=10]**

7. What are heterocyclic compounds?
8. Write E1 versus E2 reactions.
9. Define phospholipids. Classify them with suitable examples and state their functions.
10. Write a short note on Anino acid as dipolar ion.
11. Give the structures of Fructose, maltose and Sucrose.
12. Define chirality and chiral centers.

- The End -