Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

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B.Pharma (2011 to 2016) (Sem.–3)

PHARMACEUTICAL CHEMISTRY-IV

(Organic Chemistry-II)

Subject Code : BPHM-306

M.Code : 46226

Time : 3 Hrs. Max. Marks : 80

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of FIFTEEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains FOUR questions carrying TEN marks each and students have to attempt any THREE questions.**

SECTION - A

1. A. What happens when :

a) Furan reacts with ammonia in presence of alumina at 400°C.

b) Oxazole is heated with ammonia and primary amines.

c) Pyridine is oxidised by H_2O_2 in acetic acid.

d) Isoquinoline is treated with tin/HCl.

e) α- Halocarbonyl compounds undergo cyclocondensation with thioamide.

B. Attempt following :

f) What is the first step of Killiani synthesis of glucose?

g) Why is sucrose nonreducing diasaccharide? Justify with structure.

h) Draw structure of lactone of cis-o-hydroxycinnamic acid.

i) Why C4 and C5 positions of imidazole are equivalent for substitution?

j) Draw the structure of any one nucleotide present in DNA.

k) Draw the structure of Sanger's reagents used in the terminal residue analysis of protein.

l) Give reaction for conversion of Xanthine to Caffeine.

m) What is iodine number?

n) Give reaction for Michael addition of Diethylmalonate to α, β-unsaturated carbonyl compounds.

o) Give reaction for Diel-Alder addition of 1,3-butadienes on maleic anhydride.

SECTION-B

2. Describe five common properties of α-amino acids.

3. Give the structures of five common nitrogenous bases present in nucleic acids. Comments on tautomerism present in these bases.

4. Name various chemical constants used in the analysis of oils and fats. Explain the determination of saponification number.

5. Describe various steps involved in Traube's synthesis of caffeine.

6. Explain benzyne mechanism of nucleophilic aromatic substitution in arylhalide.

SECTION-C

7. Explain why :

   a) Pyridine undergoes electrophilic substitutions at 3-positions. 3

   b) In quinoline electrophilic substitutions occurs preferentially in benzene ring whereas nucleophilic substitution occurs preferentially in pyridine ring. 4

   c) Give any one synthesis of imidazole. 3

8. Compare electrophilic substitution reactions in pyrrole, furan and thiophine. 10

9. a) Give outline for Ruff's degradation for conversion of aldohexoses to aldopentoses. 5

   b) Discuss any one method for determining pyranosyl ring present in glucose. 5

10. a) Give synthetic evidences in support of structure of sucrose. 4

    b) Give reason for inversion in rotation of sucrose upon hydrolysis. 3

    c) Compare structures of starch and cellulose. 3

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.