22CHU622

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Sixth Semester)

Branch – **CHEMISTRY**

ORGANIC CHEMISTRY - II

Time: Three Hours | Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 In pyridine, the electrophilic substitution reaction takes place at
(i) N1-position (ii) C2-position
(iii) C3-position (iv) C4-position

2 Which of the following is not present in DNA?
(i) Adenine (ii) Guanine
(iii) Uracil (iv) Cytosine

3 When acylazide is heated in presence phenol gives
(i) RNHCOOPh (ii) RNH2
(iii) PhNHCOOR (iv) RCOOPh

4 Which of the following is NOT an example for nucleophile?
(i) H_2O (ii) SO_3
(iii) NH_3 (iv) R-OH

5 According to Bayer's strain theory, the most stable cycloalkane is
(i) Cyclopropane (ii) Cyclobutane
(iii) Cyclopentane (iv) Cyclohexane

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Write the preparation and properties of thiophene.
OR
b Discuss the synthetic application of RMgBr.

7 a Discuss any one method for each C- and N-terminal group analysis in peptide.
OR
b Describe the structure of DNA.

8 a Propose a feasible mechanism for Pinacol-Pinacolone rearrangement.
OR
b Elaborate the mechanism of Wolff-Kishner reduction.

9 a Discuss the S_N1 mechanism with evidences.
OR
b Illustrate Zaitsev's rule and Hofmann rule with suitable examples.

10 a How do you prepare cycloalkane from the following compounds?
i) malonic ester, ii) benzene, and iii) cyclopentanone
OR
b Define conformational analysis. Illustrate the conformation analysis of *n*-butane.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Write the preparation and chemical properties of Indole.

OR

b Discuss the synthetic utility of selenium dioxide and lead tetraacetate.

12 a State the principle involved in the synthesis of polypeptide. Represent the synthesis of typical dipeptide by Merrifield synthesis.

OR

b Explain primary, secondary and tertiary structure of protein with neat diagram.

13 a When ketoxime is subjected to Beckmann rearrangement following by hydrolysis yield aniline and acetic acid. Find the configuration of ketoxime with proper mechanism.

OR

b Write mechanism for Birch reduction with electron donating/withdrawing groups.

14 a Explain the influence of substrate nature and leaving group on the rate of S_N1 and S_N2 reaction.

OR

b Sketch the benzyne mechanism with evidences.

15 a Analyze the stability of cycloalkanes by Bayers strain theory? Mention any two limitations of this theory.

OR

b Illustrate the conformation analysis of disubstituted cyclohexane in detail.

Z-Z-Z END