

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018  
(Second Semester)

Branch - CHEMISTRY-®

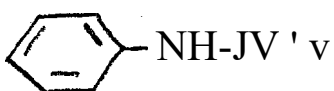
ORGANIC CHEMISTRY-II

Time : Three Hours

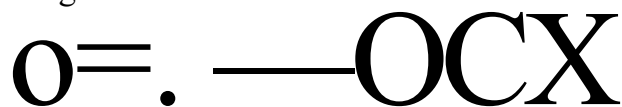
Maximum : 75 Marks

Answer ALL questions

ALL questions carry EQUAL marks (5 x 15 = 75)

- 1 a Discuss the  $SE^1$  mechanism. (3)
- b Differentiate  $SE^2$  from  $SN^2$  reactions. (3)
- c Nitration of aniline with con  $HNO_3$ /con  $H_2SO_4$  yields mainly m-nitro aniline instead of Q-& p -product. Explain. (3)
- d Explain Riemer - Tieman reactions in pyrrole with suitable mechanism. (4)
- e Write the mechanism for Gattermann-koch reaction. (2)
- OR
- f Discuss the effect of substrate on  $SE^1$  &  $SE^2$  reactions (4)
- g Explain 2,6- dimethyl derivative of N,N - dimethyl aniline does not couple with diazocation, however, N,N - dimethyl aniline readily couples with diazocation. (3)
- h Discuss the mechanism of stork- enamine reaction and list out the salient features of this reaction. (5)
- i Offer the suitable mechanism for the following reaction. (3)
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- 2 a What are the factors that favour  $E, CB$  mechanism? (3)
- b Discuss the mechanism of pyrolytic elimination in xanthates. (3)
- c Explain Erythro isomer of 1-bromo,1,2 -diphenyl prepare undergoes base induced dehydrobromination at a much slower reate than the threo isomer does (4)
- d Illustrate the oxidation reaction of  $CrO_3$  based reagents. (5)
- OR
- e Explain zaitser's and hofmann rule with examples (6)
- f Write short notes on i) Birch reduction ii) MPV reduction (6)
- g Why  $E_2$  reactions are stereospecific? (3)

- 3 a Discuss the electrophilic addition reactions in allene system (3)
- b Different Prevost and Woodward's reaction with suitable example. (5)
- c Addition of HBr to propene follows Markovnikov's rule, while in presence of  $H_2O_2$  follows anti-Markovnikov's rule, Explain with mechanism. (5)
- d Write a mechanism for Wittig reaction. (2)
- OR
- e Illustrate Stobbe condensation with mechanism. (4)
- f How will you achieve cis and trans diol from alkenes? (3)
- g By applying Mannich reaction and condensation reaction. How will you convert the given reaction. (3)



- h Discuss the importance of hydroboration reaction in organic synthesis. (S)
- 4 a Explain the use of carbobenzyloxy chloride and p-nitro phenol in peptide synthesis. (6)
- b Describe any one method each to identify N-terminal and C-terminal amino residue in peptide. (3)
- c Discuss the functions of nucleic acids. (3)
- d Write any one carboxylation reaction where an enzyme participates. (3)
- OR
- e Write short notes on Merrifield synthesis. (5)
- f Explain the factors that will influence enzyme action. (5)
- g Differentiate nucleoside and nucleotide. (5)
- 5 a What are phase transfer catalysts? Why are they very useful when organic reactions are carried out in aqueous medium? Explain with example. (4)
- b How does DCC act as a dehydrating agent? (3)
- c Outline the preparation and any four synthetic applications of trimethylsilyl iodide. (6)
- d Complete the following reactions. (2)



- OR
- e Illustrate umpolung behaviors with suitable example. (5)
- f Write the preparation of LDA and explain why LDA is an ideal base for