

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019  
(First Semester)

Branch - CHEMISTRY

ORGANIC CHEMISTRY -1

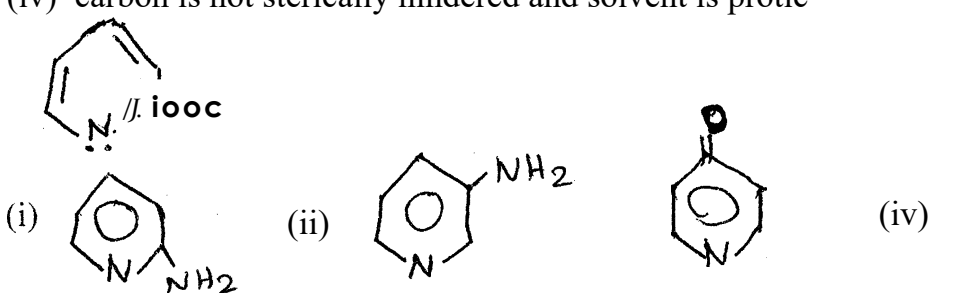
Time : Three Hours

Maximum : 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- Hammond Postulate gives the relationship between
  - structure of transition state and reaction rate
  - structure of transition state and energy of reactant/product
  - quantity of product and temperature of the reaction
  - structure of transition state and quantity of product
- The value of Deuterium kinetic isotopic effect lies in the range
  - 1-1.3
  - 2-8
  - 10-16
  - >16
- Which one of the following group has highest priority in R-S nomenclature?
  - I
  - Br
  - Cl
  - \* -F
- Geometrical isomerism is shown by
  - Lactic acid
  - Maleic acid
  - 1-butene
  - 1,1-dichloroethylene
- SN<sup>1</sup> pathway is favoured when
  - carbon is sterically hindered and solvent is aprotic
  - carbon is not sterically hindered and solvent is aprotic
  - carbon is sterically hindered and solvent is protic
  - carbon is not sterically hindered and solvent is protic
- 
- Number of ethylenic double bonds present in quinine is
  - one
  - two
  - three
  - no ethylenic double bond
- The method used to detect and estimate the number of methyl groups attached to a Nitrogen atom is
  - Herzig Meyer's method
  - Hotmann method
  - Emde's method
  - Von Braun's method
- an alpha, beta unsaturated aldehyde with hydrazine and subsequent dehydrogenation gives
  - pyrazole
  - oxazole
  - pyridine
  - pyrimidines
- Luteolin is
  - an alkaloid
  - terpenoid
  - vitamin
  - flavone

Cont...

**SECTION- B (25 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

11 a Explain the steric inhibition of resonance with examples.

OR

b Explain the non-kinetic methods of study of reaction mechanism.

12 a Illustrate and explain steric assisted and steric hindered reactions with examples.

OR

b Discuss the optical isomerism in biphenyls and pyranes.

13 a Discuss the nucleophilic substitution reaction at allelic and vinyl carbons.

OR

b Discuss the SNAR mechanism.

14 a Discuss the structure of starch.

OR

b How will you illustrate the structure of zingiberene?

15 a Discuss the isolation and detection methods of anthocyanins.

OR

b Give any two methods of preparation of pyrazoles.

**SECTION -C (40 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

16 a Discuss the various factors that influence the acidity and basicity of organic compounds with examples.

OR

b Derive Hammett equation.

17 a Explain optical isomerism due to restricted rotation with examples.

OR

b i) What are stereo specific and stereo selective reactions? Give examples,

ii) Explain geometrical isomerism in aldoximes and ketoximes.

18 a Discuss the mechanism of the following : (i) Benzyne mechanism  
(ii) SN<sub>2</sub> mechanism.

OR

b Explain the acid and base catalyzed hydrolysis of esters with examples.

19 a Elucidate the structure of maltose.

OR

b Elucidate the structure of quinine.

20 a Discuss the synthesis and reactivity of oxazoles.

OR

b Elucidate the structure of luteolin? How will you synthesize luteoline?