



DII-003-011203

Seat No. _____

**M. Sc. (Industrial Chemistry) (Sem. II) (CBCS)
Examination**

May / June – 2015

IC - 203 : Heterocyclic Chemistry

Faculty Code : 003

Subject Code : 011203

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

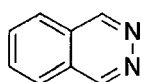
Instructions: All Questions are compulsory & carries 14 marks.

Q.1] Answer any Seven out of the following ten questions:

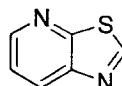
14

1. Give the nomenclature of the following:

i)



ii)



2. Give the structures of the following

i. Thiazolo[5,4-*d*]oxazole

ii. Pyrido[3,4-*b*]pyrazine

3. Give the structures of the following

i) Pyrimido[4,5-*d*]pyrimidine

ii) Benzo[*b*]thiophene

4. Explain synthesis of the Pyrazole.

5. Give the reduction reaction of Isoquinoline.

6. Give synthesis of Pyridazine.

7. Discuss synthesis of 1,2,4 Oxadiazole.

8. Explain Claisen synthesis of Isoxazole.

9. Write applications of Indole.

10. Discuss the reduction reaction of Quinoxaline.

Q.2] Answer any Two out of the following three questions:

14

1. Give three synthesis and electrophilic substitution reactions of Pyridine

2. Explain: i) Knorr synthesis of Quinoline, ii) Biginelli reaction of Pyrimidine

3. Describe the electrophilic substitution reactions of Pyrimidine and Quinazoline.

Q.3] Answer the following Two questions:

14

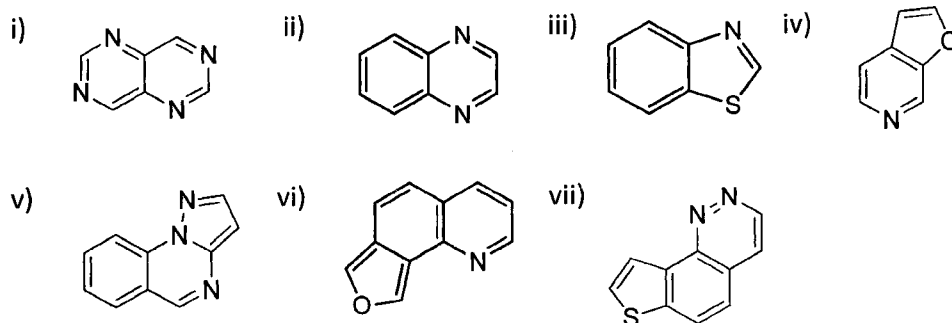
1. Discuss synthesis and electrophilic substitution reactions of Indole.
2. Give the structures of the following
 - i) Thiazolo[5,4-d]thiazole
 - ii) Oxazolo[5,4-c]quinolone
 - iii) Thieone[2,3-*b*]furan
 - iv) Furo[2,3-*c*]quinoline
 - v) Thiazolo[5,4-*d*]oxazole
 - vi) 1*H*-pyrazolo[3,4-*d*]pyrimidine
 - vii) Imidazolo[5,4-*b*]pyridine

OR

Q.3] Answer the following Two questions:

14

1. Give synthesis and electrophilic substitution reactions of Benzothiophene.
2. Give the nomenclature of the following



Q.4] Answer any Two out of the following three questions:

14

1. Discuss synthesis and electrophilic substitution reactions of Oxazole.
2. Explain electrophilic and nucleophilic substitution reactions of Quinoline.
3. Give synthesis, electrophilic and nucleophilic substitution reactions of Phthalazine

Q.5] Answer any Two out of the following four questions:

14

1. Explain nucleophilic substitution reactions and synthesis of Pyrazole.
2. Discuss electrophilic substitution reactions of Isothiazole and Thiazole.
3. Give three syntheses and electrophilic substitution reactions of Benzofuran.
4. Explain Skraup and Friedlander synthesis of Quinoline and its application