Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. Sem - IV Examination June- 2011

Subject code:240003

Subject Name: Pharmaceutical Chemistry-IV

Date:06/06/2011 **Time: 10.30 am – 01.30 pm**

Total Marks: 80

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Use freely structural formula, equations, diagrams, arrows, figures, three dimensional expressions etc., wherever possible, to make your answer more effective.**

Q.1 Explain, clearly and briefly, each of the following terms: **16**

(i) Arenes (ii) Dienophile (iii) Aminal (iv) Spirans (V) Enols (vi) S-cis
(vii) α-Hydrogen (viii) Tautomerism (ix) Chirality (x) Electrophile (xi) Aromaticity

Q.2 Correct, if necessary and answer each of the following statements: **16**

1. All stereoselective reactions are stereospecific also.
2. Nitro group, when attached to benzene, is activates the ring.
3. Phenols have p^{ka} 10 while alcohols have 15.
4. Ammonia is more basic than aniline.
5. Acetylcholine has both muscarinic and nicotinic actions.
6. Only phenol and aniline give azo-dye test positive.
7. Nucleophilic addition is common for Carboxylic acid derivatives.
8. Aromatic compounds undergo electrophilic substitution only.

Q.3 Discuss in detail, reaction mechanism of each of the following reactions. **16**

1. Aniline + dil.HCl + Sodium nitrite --Cold→ Benzenediazonium Chloride
2. Chlorobenzene + Sodamide --liq.ammonia→ Aniline
3. Acetaldehyde + Sodium hydroxide --Heat→ 2 –Butenal
4. Phenol + Chloroform + Sodium hydroxide ---→ Salicyaldehyde

Q.4 **(a)** Draw stereochemical (3-dimensional) structural formula of all possible isomers and specify configuration of each isomers of the followings **08**

(i) 2-Chlorobutane (ii) 2-Hexene (iii) 2,3-Hexadiene (iv) 2,3,4-Hexatriene

(b) Write notes on relations between stereoisomers and drugs effects on human body. **05**

(c) What is 1,3-Diaxial interaction ? Explain it taking example of methylcyclohexane. **03**

Q.5 Give any three methods of preparations of followings: **16**

(i) Alkylbenzenes (ii) Amines (iii) Phenols
(iv) Aldehydes (v) Polynuclear aromatic hydrocarbons.

Q.6 Give any three chemical reactions of followings: **16**

(i) Amides (ii) Ketones (iii) α,β-Unsaturated carbonyl compounds
(iv) Aromatic amines (v) Carboxylic acids

Q.7 **(a)** What is environmentally bening chemistry? Discuss any four principles of it. **05**

(b) What are nano particles ? Discuss four nano particles used in Pharmacy **05**

(c) Write notes on Diels-Alder reaction with reference to conservation Of orbital symmetry rules. **06**

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