

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF APPLIED CHEMISTRY
END OF SEMESTER EXAMINATIONS – MAY 2003
ORGANIC INDUSTRIAL CHEMISTRY III – SCH 4215
TIME – (3) THREE HOURS

INSTRUCTIONS TO CANDIDATES

Answer **ALL** questions from Section A and **ANY THREE** questions from Section B.

SECTION A

Answer ***ALL*** questions in this section.

1. a) Outline four basic properties of phenolic resins and name four major industries where phenolics are used. (4marks)
- b) Suggest three common techniques of fabrication of polyester resins and three common uses of these resins. (6marks)
- c) What are the three main raw materials in the preparation of epoxy resins? Show the repeating unit for this polymer. (4marks)
- d) Name two drugs for each of the following therapeutic classes: *analgesics; antibiotics; antiulcer; sedatives; antipyretics; antianxiety*; (6marks)
- e) Give ***FIVE*** side effects of abuse of aspirin. (5marks)
- f) Briefly explain the importance of vitamins to humans. (5marks)
- g) With reference to the production of beer, write short notes on the following stages: *i) brewing of mash and ii) fermentation*. (10marks)

SECTION B

Answer ***THREE*** questions from this section.

2. a) Give a brief description of the mechanism of emulsion polymerization. (5marks)
- b) With the aid of a diagram, outline in detail the bulk polymerization of styrene siting temperature control and polymer conversion. (15 marks)

3. Phenolics may be produced through condensation reactions of phenol or its derivatives with formaldehyde. Outline the fabrication of these resins, detailing the one stage and two stage processes while using different types of catalysts. Explain the different levels of polymerization for novolacs, resoles and resites. (20marks)
4. a) Give **FOUR** ways of administering a drug to a patient. (4marks)
- b) Discuss briefly the factors that affect drug response in the body of a patient. (6marks)
- c) The production of *daizepam* follows a condensation and cyclization process. Outline the chemical reactions involved in this process through the treatment of p-chloromethylaniline. (10marks)
5. a) Explain **precisely** the meanings of the following terms as applied or referred to in the sugar, alcohol and starch industries:
- | | | | |
|----------|------------|----------|------------|
| strike | conversion | baggase | imbibition |
| spurging | adjuncts | lagering | |
| germ | gluten | throughs | (10marks) |
- b) With the aid of a diagram briefly explain the production of starch from corn. (10marks)

END OF PAPER!!!

LIBRARY USE ONLY