

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF APPLIED CHEMISTRY
END OF SECOND SEMESTER EXAMINATIONS - MAY 2001
ORGANIC INDUSTRIAL CHEMISTRY III - SCH 4215
TIME - (3) HOURS

LIBRARY USE ONLY

INSTRUCTIONS TO CANDIDATES

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

SECTION A (40 marks)

1. (a) What are the *five* basic raw materials of the plastics industry? (5 marks)
- (b) Differentiate between thermoplastic and thermosetting materials. (2 marks)
- (c) Name *two* classes of drugs and give two examples for each class. (6 marks)
- (d) Pharmacology can be defined as the study of drugs. What five areas of interest are normally considered in the study of drugs. (5 marks)
- (e) Give *two* examples for each of the following materials:
- (i) fat soluble vitamins
 - (ii) water soluble vitamins
 - (iii) sources of riboflavin (6 marks)
- (f) Explain the differences between *beer* and *wine*. (3 marks)
- (g) Write the basic chemical structures of each of the following polymer materials:
- (i) polyolefins
 - (ii) phenolic resins
 - (iii) polyester resins
 - (iv) epoxy resins
 - (v) amino resins (10 marks)
- (h) In a fermentation process, what is the role of the following:
- (i) malt
 - (ii) yeast
 - (iii) hops (3 marks)

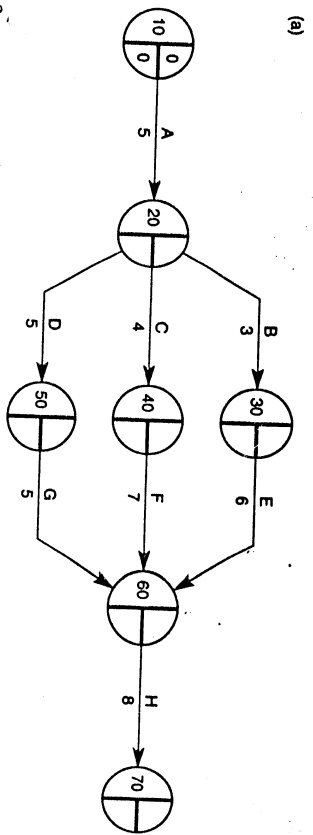
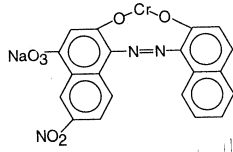


Fig. 2

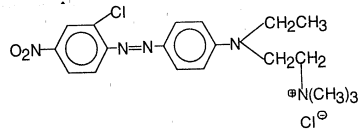
SECTION B

- 1a. Outline a synthesis for *Acid Black 52* shown below:



(10 marks)

- 1b. Starting with a mono substituted benzene, outline a synthesis of the *Coupling Component* for *Basic Red 18* below.



(10 marks)

- 2a. What is meant by compounding of plastics? (5 marks)
- 2b. Give five examples of processing methods of plastics. (5 marks)
- 2c. Compare and contrast the injection moulding of thermoplastics and thermosetting plastics. (10 marks)
- 3a. What are the major problems associated with poly(vinyl) chloride? How are these problems overcome? (8 marks)

3b. Briefly describe the blow moulding of thermoplastics. (6 marks)

3c. What is meant by "Melt Flow Index"? (6 marks)

4a. Discuss briefly how two named organic solvents can be obtained by fermentation. (8 marks)

4b. What is meant by the term "antibiotic"? Give two examples. (6 marks)

4c. Define the following terms:
(i) Nonnarcotic Analgesics
(ii) Antacid
(iii) Antibacterial agents.
Give one example in each case. (6 marks)

END OF QUESTION PAPER!!!