



**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**DEPARTMENT OF APPLIED CHEMISTRY**  
**END OF SEMESTER EXAMINATIONS – MAY 2004**  
**ORGANIC INDUSTRIAL CHEMISTRY I – SCH 2215**  
**TIME: 3 HOURS**

**INSTRUCTIONS TO CANDIDATES**

Answer **ANY FIVE (5)** questions from the six (6) provided. Each question carries 20 marks.

- 
1. (a) Differentiate between coal and coke. . (4 marks)
- (b) Name *two* uses of coke in the Metallurgical industry. (2 marks)
- (c) Indicate the final composition of the gas from the coking of coal. (10 marks)
- (d) State *any two* possible uses of this gas. (4 marks)
2. (a) What is napalm? Describe how it can be used in warfare. (8 marks)
- (b) A mining concern requires to blast granite rock of high hardness in order to gain access to a gold reef entrapped within this rock.
- What chemical explosive(s) would you recommend for this operation and how should the explosive be inserted into the rock? (8 marks)
- (c) Name the products of detonation of the explosive you named in (2b) above. (4 marks)
3. (a) What is wood cellulose? (2 marks)
- (b) Describe *two* methods by which terpentine can be manufactured from wood. (14 marks)
- (c) Name *two* uses of rosin. (4 marks)
4. Describe the following processes in pulp and paper manufacturing:
- (a) beating
- (b) debarking

- (c) sizing
  - (d) filling
  - (e) stocking
- (20 marks)

5. Describe *two* methods by which aniline can be produced from benzene. Use flow charts to illustrate your answer. (20 marks)
6. (a) Draw the general process flow of manufacture of dyes from petroleum. (4 marks)
- (b) How are "*ice colours*" made? (4 marks)
- (c) What are coupling reactions? Give examples of coupling reactions in dye manufacture. (8 marks)
- (d) List *four (4)* difficulties that a dye manufacturing company could encounter in the manufacturing process. (4 marks)

*End of question Paper!!!*