

**UNIVERSITY COLLEGE TATI (UC TATI)****FINAL EXAMINATION QUESTION BOOKLET**

COURSE CODE	: FEE 1123
COURSE	: BASIC ENGINEERING 2
SEMESTER/SESSION	: 2 - 2022/2023
DURATION	: 3 HOURS

**Instructions:**

1. This booklet contains **4** questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO**  
**THIS BOOKLET CONTAINS 4 PRINTED PAGES INCLUDING COVER PAGE**

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**QUESTION 1**

Alanta Pte Ltd is one of leading company in producing Ammonia ( $\text{NH}_3$ ) for farming fertilizer. It was established on 2002 at Kertih Polymer Park with 180 no of workers, this company use Ethylene as their main raw material to produce this fertilizer.

- a) Name the nearest/possible Ethylene supply plant. (2 marks)
- b) State two (2) reasons for (a). (4 marks)
- c) List five (5) petroleum refineries which is related for the process. (5 marks)
- d) Ammonia ( $\text{NH}_3$ ) was define as corrosive for skin with irritant condition. For this statement, describe three (3) possible hazard and three (3) risk for Ammonia barrel replacement. (11 marks)
- e) During packaging process, the company plan to replace current Acrylic adhesive with elastomeric type. Explain your opinions on this plan towards practically usage. (5 marks)
- f) Identify alternative to Acrylic and Elastomeric adhesive for the same packaging process. (2 marks)
- g) Illustrate the process adhesive mechanism. (4 marks)

**QUESTION 2**

- a) Referring to the circuit in Figure 1, by using Kirchoff's laws calculate:
- The current,  $I_1$ . (3 marks)
  - The current,  $I_2$ . (3 marks)
  - The current,  $I_3$ . (2 marks)
  - The voltage,  $V$  at each resistor by using Ohm's law. (3 marks)

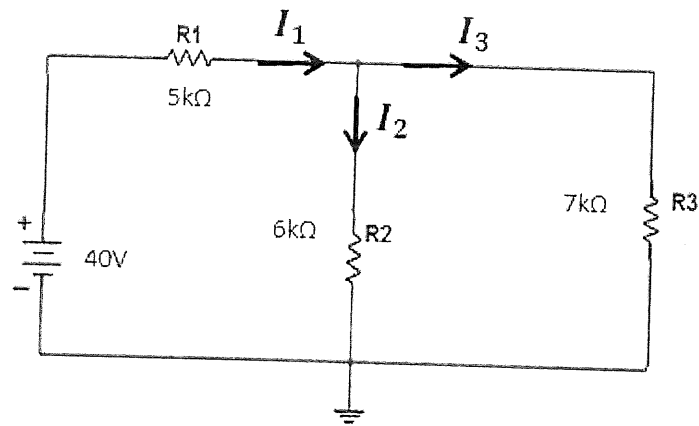


Figure 1

- Give five (5) sensor characteristics. (5 marks)
- Classify three (3) of sensor material for inorganic and organic (6 marks)
- Illustrate a simple of diagram represent the pneumatic system in industry with the labels. (5 marks)
- Explain three (3) pressure to control the valve in pneumatic system. (6 marks)

**QUESTION 3**

- a) Explain your understanding about Sheet Metal. (3 marks)
- b) Classify four (4) Sheet Metal Operations. (4 marks)
- c) Sketch the basic process of rolling. (4 marks)
- d) Interpret two (2) groups of plastics. (4 marks)
- e) Interpret differentiate between Injection Moulding and Blow Moulding. (4 marks)
- f) Give four (4) factors should be consider when using Compression Moulding methods. (4 marks)

**QUESTION 4**

- a) Explain your understanding about Production and Planning Control. (4 marks)
- b) Interpret differentiate between Inventory and Inventory System. (4 marks)
- c) Classify three (3) uses of forecasts that affect decisions and activities throughout an organization. (3 marks)

-----End of question-----