

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

COURSE CODE	: BPE 2274
COURSE	: PLASTIC PROCESSING
SEMESTER/SESSION	: 1-2022/2023
DURATION	: 3 HOURS

Instructions:

1. This booklet contains **5** 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 up 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

QUESTION 1

- a) Identify **one (1)** way to overcome bridging in extrusion process. (2 marks)
- b) Explain the functions of each zones of an extruder screw. (9 marks)
- c) What is L/D ratio for an extruder? Predict the effect of an extruder with high L/D ratio. (4 marks)
- d) Illustrate the process of co-rotating and counter-rotating twin screw extruder. (6 marks)
You may include drawing to assist your explanation.
- e) Describe why it is important to dry polymer pellets before being used in any plastics processing. (4 marks)

QUESTION 2

- a) Compare the extrusion and injection molding process. (9 marks)
- b) Show the steps in injection molding cycle. In your answer, include the movement of the screw and the mould. (8 marks)

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QUESTION 3

- a) Blow molding is a process to produce hollow articles like bottles, barrels and toys. Describe the general steps in blow molding. (9 marks)
- b) An important parameter for blow molding is the blow ratio. Interpret what the blow ratio is and its effect on blow molding process. (4 marks)
- c) The most utilize processes in blow molding are injection blow molding and extrusion blow mounding. Differentiate the processes. (6 marks)
- d) Illustrate the process of stretch blow moulding to produce PET bottle. (6 marks)

QUESTION 4

- a) Blown film is a process that is used to make thin film bags, such as garbage bags and other high-volume, thin walled film materials. Sketch the blown film processing line and label it accordingly. (9 marks)
- b) Determine the functions of the followings: (4 marks)
 - i. collapsing guides
 - ii. freeze line
- c) Identify the defects that can occur on blown film product and its possible remedy. (4 marks)

QUESTION 5

- a) List out the materials used as mould for casting process. (4 marks)
- b) There are few types of casting process. Explain **two (2)** of them briefly (4 marks)
- c) Recognize the basic principle of compression molding. (4 marks)
- d) Differentiate between compression and transfer molding process. (4 marks)

-----End of questions-----