

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code: 3152307****Date: 07-12-2023****Subject Name: Plastics Extrusion Technology****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|---|-----------|
| Q.1 | (a) Explain the extruder drive system. | 03 |
| | (b) Explain the melting mechanism in extrusion. | 04 |
| | (c) Which are the types of heating systems used on Extrusion machines? Discuss electrical heating in detail. | 07 |
| Q.2 | (a) Define: | 03 |
| | (i) Breaker Plate | |
| | (ii) Feed Hopper | |
| | (iii) L/D ratio | |
| | (b) Explain: Drag flow, Pressure flow | 04 |
| | (c) With a neat line diagram, discuss the manufacture of Monofilaments. | 07 |
| | OR | |
| | (c) Give any five troubleshooting for the manufacturing of pipes. | 07 |
| Q.3 | (a) What is the Compression ratio? Explain its Significance. | 03 |
| | (b) Discuss the difference between corotating and counter rotating twin screw extruders. | 04 |
| | (c) Give any five troubleshooting for the manufacturing of sheets. | 07 |
| | OR | |
| Q.3 | (a) Discuss mixing screws with diagrams. | 03 |
| | (b) Discuss thrust bearing blocks of single and twin-screw extruders with diagrams. | 04 |
| | (c) What is Grooved barrel technology? Discuss in detail. | 07 |
| Q.4 | (a) Compare Blown film with Cast film. | 03 |
| | (b) Give two troubleshooting for manufacturing of film. | 04 |
| | (c) Explain the sheet manufacturing process with a neat diagram. | 07 |
| | OR | |
| Q.4 | (a) Discuss Screen pack and Breaker plate | 03 |
| | (b) Give the proper reason for the uses of PVC screw and Nylon screw. | 04 |
| | (c) Discuss raw material selection criteria for the extrusion process in detail. | 07 |
| Q.5 | (a) Define [any three]: Extrudate, Thrust bearing, Reduction gearbox, Compression ratio | 03 |
| | (b) Discuss about AC v/s. DC motors for extruder machines. | 04 |
| | (c) With a neat line diagram, explain the manufacture of wires and cables. | 07 |
| | OR | |
| Q.5 | (a) Discuss manufacture of HMHDPE films. | 03 |
| | (b) Draw the diagram of straight through die and crosshead die. | 04 |
| | (c) Differentiate between Single and Twin-Screw Extruders in detail. | 07 |
