

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER – VII • EXAMINATION – SUMMER 2016

Subject Code: 3372303

Date: 10/05/2016

Subject Name: Designing Of Extrusion Dies

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

- Q.1** Answer any seven out of ten. **14**
1. Define Newtonian fluid and non Newtonian fluid.
 2. State various factors affecting extrusion output.
 3. Define die-swell. State any one method of reducing it.
 4. Give significance of restrictor buldge.
 5. Sketch velocity profiles of Newtonian and non-Newtonian fluids.
 6. State functions of die adaptor.
 7. How will you arrange four screens of size 20, 20, 40 and 60 mesh between extruder barrel and die?
 8. State any two applications of offset die.
 9. State any two factors you will consider while designing dies for PVC.
 10. State types of film dies considering direction of material flow.
- Q.2** (a) Define: Shear, shear stress and viscosity. **03**
- OR
- (a) Explain in brief the effect of shear stress and shear rate on viscosity. **03**
- (b) Explain various die design rules. **07**
- OR
- (b) What is land length? Explain its importance in die design. **07**
- (c) State and explain types of flow. **04**
- OR
- (c) What is melt fracture? State remedies for minimizing it. **04**
- Q.3** (a) List various factors affecting die design. **03**
- OR
- (a) List types of materials use for die manufacturing. **03**
- (b) Explain die streamlining methods. **07**
- OR
- (b) Explain various die restriction methods and its effect on polymer melt. **07**
- (c) State functions of breaker plate and screen pack assembly. **04**
- OR
- (c) Sketch various types of breaker plates. **04**
- Q.4** (a) Draw neat sketch of tube die and label different parts. **10**
- OR
- (a) Draw neat sketch of wire-coating die and label different parts. **10**
- (b) Compare side-fed and centre-fed film dies. **04**

OR

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| | (b) | Sketch fish-tail die for PVC. | 04 |
| Q.5 | (a) | Sketch any one type of sizing calibrator. | 04 |
| | (b) | State significance of die adaptor. Explain various aspects to be considered for die adaptor design. | 07 |
| | (c) | Give classification of extrusion dies. | 03 |
