

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2021****Subject Code:3152309****Date:24/12/2021****Subject Name:Plastic Mold & Die Design****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. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|---|-----------|
| Q.1 | (a) Define: i) Mould; ii) Impression; iii) Register Ring; | 03 |
| | (b) Fill in the blanks: | 04 |
| | i) Core and cavity is made out of small steel block, is called as _____ | |
| | ii) _____ gate is used for single impression tubular shaped moldings. | |
| | iii) _____ receives the plastic melt from the machine nozzle. | |
| | iv) _____ ejection is used for thin walled components. | |
| | (c) Explain the construction details of Two plate mould with neat figure. | 07 |
| Q.2 | (a) What are the main differences between two plate and three plate mould? | 03 |
| | (b) Discuss Integer method and Insert bolster assembly method. | 04 |
| | (c) What is ejection system? Explain any two types of ejection. | 07 |
| | OR | |
| | (c) Draw cooling channels for Integer core & cavity plate. | 07 |
| Q.3 | (a) Name the different types of split mould actuation methods. | 03 |
| | (b) Explain split mould. | 04 |
| | (c) Explain sliding splits, and guiding & retention of splits. | 07 |
| | OR | |
| Q.3 | (a) Name the parts of splits type mould. | 03 |
| | (b) Explain angled-lift splits. | 04 |
| | (c) Explain Stripping internal undercuts with neat figure. | 07 |
| Q.4 | (a) What are the different methods of thread forming? | 03 |
| | (b) What are the alternative designs of moulds for internal threaded components for withdrawing the moulding? | 04 |
| | (c) How the Extrusion dies are classified? | 07 |
| | OR | |
| Q.4 | (a) Discuss about Sprue pullers. | 03 |
| | (b) Define: i) Core; ii) Cavity; iii) Sprue Bush; iv) Guide Pillar; | 04 |
| | (c) What is parting line? Explain different types of Parting surface. | 07 |
| Q.5 | (a) What are the different types of Multi daylight mould? | 03 |
| | (b) What are the stages involved in Extrusion die design procedure? | 04 |
| | (c) Calculate the Volumetric output of extruder & Velocity of melt for the following:
Extruder size = 65mm; Extruder output = 60 kg/hr; Outside diameter of pipe = 90mm;
Thickness of pipe = 4.5mm; Material = HDPE; Density of Solid = 0.955 g/cc; Density of melt = 0.81 g/cc; | 07 |
| | OR | |
| Q.5 | (a) Discuss about the feed system. | 03 |
| | (b) Explain Rectangular edge gate and Fan gate. | 04 |
| | (c) Calculate runner efficiency for Fully round, Half round, Trapezoidal, Modified trapezoidal, Hexagonal, Rectangular and Square gates. | 07 |