Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012**

**Subject code: 142301** **Date: 27/12/2012**

**Subject Name: Basic Plastics Processing and Thermal Engineering**

**Time: 02.30 pm - 05.00 pm** **Total Marks: 70**

## Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | Distinguish between Compression Moulding and Transfer Moulding Process | **07** |
| | **(b)** | Explain the Causes and Remedies of transfer moulding process | **07** |
| **Q.2** | **(a)** | Explain the plunger type of Transfer Moulding Process and their advantages and disadvantages | **07** |
| | **(b)** | Explain thermoplastics and thermosets material used in various processing techniques. **OR** | **07** |
| | **(b)** | Explain the Parallel, Counter and Condenser heat flow exchanger with neat sketch | **07** |
| **Q.3** | **(a)** | Write the Principle of Thermoforming Process and explain any 2 types of thermoforming process | **07** |
| | **(b)** | Explain about plastic memory and their selection criteria for thermoforming process | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain the basic extrusion blow moulding process s | **07** |
| | **(b)** | Explain bulk factor and preforming and their advantages and disadvantages. | **07** |
| **Q.4** | **(a)** | Explain about injection stretch blow moulding process and their advantages and disadvantages. | **07** |
| | **(b)** | Derive the Overall Heat transfer coefficient. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain the Parison programming with neat sketch? | **07** |
| **Q.4** | **(b)** | Define conduction mode of heat transfer and derive Fourier's law equation? | **07** |
| **Q.5** | **(a)** | Write the Principle of Compression Moulding process and factors affecting the technique. | **07** |
| | **(b)** | The outer surface of 0.4 m thick concrete wall (15 m X3m) is kept at a temperature of 20 $^{o}$C. Thermal conductivity of the concrete is 1.2 W/Mk. Determine the thermal resistance of the wall and rate of heat loss through it. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Find the rate of heat transfer of a homogeneous plane wall, given the following; Temperature of outer and inner surface 100 $^{O}$C and 30 $^{O}$C respectively; thermal conductivity 1.75 W/mK and wall thickness 25 cm | **07** |
| | **(b)** | Describe about the types of mould used for compression moulding process | **07** |

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