

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-IV Examination June- 2010****Subject code: 142301****Subject Name: Basic Plastics Processing and Thermal Engineering****Date: 17 / 06 /2010****Time: 10.30 am – 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.

- Q.1 (a)** Answer the Following- **07**
 (1) Define - (i) Cavity (ii) Flash (iii) Conduction (iv) Capacity ratio
 (2) Give detailed classification of heat exchangers.
- (b)** List the various processes used in Thermoforming. Explain Straight forming in detail with neat sketch. **07**
- Q.2 (a)** Answer the following **07**
 1. Give advantages and disadvantages of Preforms.
 2. Write a short note on Bulk factor.
- (b)** Calculate the following- **07**
 (1) The outer surface of a 0.3 m thick concrete wall (12 x 4 m) is kept at a temperature of 7 °C while the inner surface is kept at 35 °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.
 (2) A 3 cm dia rod with a surface emissivity (ϵ) of 0.8 is maintained at 627 °C. It is placed in a vacuum chamber whose walls are maintained at 427 °C. Calculate the rate of heat loss from the rod.
- OR**
- (b)** Give advantages and disadvantages of transfer molding process. **07**
- Q.3 (a)** Explain Injection Blow Molding Process in detail along with its advantages. **07**
(b) Describe material and process variables for processing the thermoforming sheet. **07**
- OR**
- Q.3 (a)** Give advantages and disadvantages of Cold forming process. **07**
(b) Classify the types of molds used in compression molding and explain any two in detail. **07**
- Q.4 (a)** Give comparisons between compression and transfermolding process in detail. **07**
(b) Describe shell & tube type heat exchangers with neat sketch along with its advantages and limitations. **07**
- OR**
- Q.4 (a)** Derive a formula to calculate Overall heat transfer coefficient. **07**
(b) Explain snapback forming and billow snapback forming processes in detail with neat sketch. **07**
- Q.5 (a)** Give major problems, causes and remedies in compression molding process. **07**
(b) Explain working process of Pot transfer molding process. **07**
- OR**
- Q.5 (a)** Explain the fourier's law for conduction and give formula for thermal conductance and resistance. **07**
(b) Explain basic extrusion blow molding process in detail with neat sketch. **07**
