

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 transfer molding 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**
