

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-IV Examination-Nov/Dec-2011

Subject code: 142301

Date: 25/11/2011

Subject Name: Basics Plastics Processing And Thermal Engineering

Time: 02.30 pm -5.00 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) What is plastic processing? Classify the processing method. And what are the factors depends on the selection of process for producing a specific product? 07
- (b) Match the Following 07
- | Process | Article |
|-----------------------|----------------------|
| (A) Injection Molding | (1) Water Bottles |
| (B) Blow Molding | (2) Switches |
| (C) Transfer Molding | (3) Automobile Parts |
| (D) Thermoforming | (4) Disposable Cups |

And neatly explain why do need to study the flow behavior of polymer melts?

Q.2.

- (a) Explain with neat diagram of upstroke and downstroke hydraulic system. 07
- (b) What are variables during the compression process? 07

OR

- (b) What are the points to be observe during the selection of materials for thermoforming process? 07

Q.3.

- (a) Name the different moulds for thermoforming processing? Write their advantages and disadvantages of each type of mould? 07
- (b) Mention the different thermoforming techniques? Explain the straight vacuum forming process with neat diagram. 07

OR

- (a) Briefly explain the twin sheet thermoforming process. 07
- (b) Write the difference between the thermoforming and injection molding process. 07

Q.4.

- a) Explain the continuous extrusion molding process? 07
- b) What are the problems may occur after blow molding process, Explain their causes and remedies. 07

OR

- a) Mention and describe the parts and construction of blow molding machine 07
- b) Explain the stretch blow molding process 07

Q.5.

- (a) State and explain the Stefan Boltzmann Law for the rate of heat radiation from black body to another black body. 07
- (b) Explain the mode of heat transfer? Explain the plate type heat exchanger. 07

OR

- a) A 2cm dia rod with surface emissivity (ϵ) of 0.9 is maintained at 727 °C. It is placed in a vacuum chamber whose walls are maintained at 527°C. Calculate the rate of heat loss from the rod per meter length. 07
 - b) Briefly explain the types of heat exchangers 07
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