

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV EXAMINATION – SUMMER 2016

Subject Code:143605**Date:10/06/2016****Subject Name:Composite Materials****Time:10:30 AM to 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) Explain the LDPE production in detail with necessary flow sheet. 07
(b) Explain the Spray-up technique in detail for preparing Polymer composite 07
- Q.2 (a) Define and explain in brief the following terms with examples:
i.) Functionality 02
ii.) Copolymer 02
iii.) Polymer Composite 03
(b) Explain the PET production in detail with necessary flow sheet. 07
- OR
- (b) Explain cationic polymerisation in detail with all necessary steps. 07
- Q.3 (a) Explain in detail the stress-strain relations and engineering constants. 07
(b) Describe with neat sketch, the different wave pattern of fibers used in composite. 07
- OR
- Q.3 (a) Write down the preparation of Resoles phenolic resins along with its properties. 07
Enlist the assumption taken in laminate theory and state the stress strain law for
(b) single ply in the material axes for unidirectional laminate. 07
- Q.4 (a) Explain Resin transfer moulding process with suitable diagram. 07
(b) Explain the working of extruder for preparing polymer composite with sketch. 07
Write its advantages.
- OR
- Q.4 (a) Prepare diagram for filament winding for preparing polymer composite. Also mention its limitations. 07
(b) Explain the synthesis of PVC in detail along-with its properties. 07
- Q.5 (a) Explain the production of polyurethane in brief. Mention the necessary chemical reactions. 07
(b) Explain nano-composite in detail along with its advantages and limitations. 07
- OR
- Q.5 (a) Explain the method for tensile strength testing of polymer composite. 07
(b) Explain the analysis of laminates after initial failure in detail. 07