

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-IV • EXAMINATION – SUMMER • 2014**

**Subject Code: 143605****Date: 25-06-2014****Subject Name: Composite Materials****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) Explain the suspension polymerisation technique with its advantages and disadvantages. **07**
- (b) Explain the free radical polymerisation with example. **07**
- Q.2** (a) Explain the synthesis properties and application of phenol formaldehyde (Novlak) **07**
- (b) What is reinforcement in composite? Explain carbon fiber and glass fiber reinforcement. **07**
- OR**
- (b) Define and explain the following terms with examples:
1. Polymer **02**
  2. Polymerization **02**
  3. Polymer Composite **03**
- Q.3** (a) Draw the well diagram of die and explain die parts, die materials and the function of die. **07**
- (b) Explain the extrusion process of wire and cable coatings. **07**
- OR**
- Q.3** (a) Explain how the tensile testing of composite material is carried out. **07**
- (b) Explain the melt flow index testing of polymer with the machine diagram. **07**
- Q.4** (a) Define breakdown voltage of polymer and explain how the dielectric strength of polymer is measured. **07**
- (b) Explain how the izode impact strength of composite material is measured. **07**
- OR**
- Q.4** (a) What is nanocomposite? Explain the synthesis of polypropylene nanocomposite. **07**
- (b) Explain the synthesis, properties and applications of polysulphone and polycarbonate. **07**
- Q.5** (a) What are fillers? Explain different types of fillers used in composites with its function. **07**
- (b) Explain different problems occur in extrusion process with its remedies. **07**
- OR**
- Q.5** (a) Explain the synthesis, properties and application of Nylon 6,6 and polyvinyl chloride. **07**
- (b) Explain any one with suitable diagram; **07**
1. Pultrusion Process
  2. Filament Winding

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