

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:163406

Date:11 /12/ 2015

Subject Name: Composite Technology

Time:2:30pm to 5:00pm

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)** Give detail classification of fibers used as reinforcement in composite. Discuss natural fibers in detail along with its advantages. **07**
- (b)** How epoxy resin is manufactured? Mention its properties and also give its advantage over other thermoset matrices. **07**
- Q.2 (a)** Discuss various steps to manufacture carbon fibers with flow diagram. **07**
- (b)** What are composites? What is the role of matrix and reinforcement? List various advantages of FRP. **07**
- OR**
- (b)** Write about preparation and curing reaction of Vinyl ester resin. **07**
- Q.3 (a)** Which are the types of glass fibers? List various forms of glass fibers commercially available. Give advantages and disadvantages of glass fibers. **07**
- (b)** How DMC/BMC prepared? Explain in detail. **07**
- OR**
- Q.3 (a)** Write about (1) Coupling agents (2) Flame retardants. **07**
- (b)** List various molding processes for composites. Explain hand lay-up process in detail along with advantages and limitations. **07**
- Q.4 (a)** What is pultrusion? Which types of products can be prepared from pultrusion? Explain pultrusion process with neat diagram. **07**
- (b)** Explain vacuum bag molding process with neat diagram. Give difference between vacuum bag and pressure bag molding. **07**
- OR**
- Q.4 (a)** Give applications of FRP in marine, chemical and space structures. **07**
- (b)** Discuss nondestructive tests (NDT). Explain Ultrasonic method in detail. **07**
- Q.5 (a)** How Flexural properties of composite determined as per ASTM standard? Discuss. **07**
- (b)** Discuss catalyst and accelerators used in FRP. **07**
- OR**
- Q.5 (a)** Explain Filament winding process with neat diagram. **07**
- (b)** What do you mean by shelf life? How gel time is determined? Explain. **07**
