

B.Tech. Sixth Semester (Polymer (Plastic) Tech.) (CGS)  
**11125 : Elective-II : Composite Technology : 6 FEPP 05**

P. Pages : 2

Time : Three Hours



**AU - 2812**

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Diagrams and chemical equations should be given wherever necessary.
  5. Illustrate your answer necessary with the help of neat sketches.
  6. Discuss the reaction, mechanism wherever necessary.
  7. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION - A**

1. a) What do you mean by Composite? Discuss the role of basic constituent elements of composite. 8

- b) Discuss various factors which affects composites. 6

**OR**

2. a) Give classification of composite on the basis of material, with help of examples of each. 8

- b) Give selection criteria for material selection and composites formation. 6

3. a) Explain in detail following matrix materials : 9

i) Metal Matrix Composite

ii) Ceramic Matrix Composite

iii) Polymer Matrix Composite

- b) Explain cross linking mechanism of unsaturated polyester resin. 4

**OR**

4. a) Discuss the curing system used in epoxy resin? 5

- b) What are the basic raw materials used for phenolic resin preparation? Discuss the curing systems used in phenolic resin. 8

5. Explain in detail the following process for glass fiber manufacturing : 13

a) Direct melt process

b) Marble melt process

**OR**

6. a) What are Kevlar? Explain it's manufacturing, properties and applications. 6

- b) Discuss the different types of orientation of fibers and state its effect on overall strength of composite? 7

**SECTION - B**

7. What are Additives? Discuss the role of following additives in polymer composite, with example **13**
- i) Fillers
  - ii) Colourants
  - iii) Antioxidants
  - iv) Flame Retardants
  - v) U. V. stabilizer & Absorbers
  - vi) Antiozonants.

**OR**

8. a) What are the requirement that any material should full fill to act as an Additive? **7**
- b) Differentiate between open moulding and close moulding process. **6**
9. a) What are the modification and advancement in advance composite over conventional? **6**
- b) Explain pultrusion process for composite manufacturing in detail with the help of neat sketch. **8**

**OR**

10. Explain with neat sketch the following processing techniques, with it's application, advantages & limitations. **14**
- i) Resin Transfer Moulding.
  - ii) Filament Winding.
11. a) What are the prospective advantages and limitation while designing of composites. **6**
- b) Discuss the significance of advance composite in field of **7**
- i) Auto - Industry
  - ii) Aircraft & Aerospace

**OR**

12. State the applications of different composites in field of : **13**
- i) Civil Engineering.
  - ii) Textile Industry.
  - iii) Chemical & Petroleum Refinery
  - iv) Electronics & Electricals.

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