

**11125 : Elective-II : Composite Technology : 6 FEPP 05**

P. Pages : 2

Time : Three Hours

**AW - 3256**

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. Diagrams and chemical equations should be given wherever necessary.
  4. Illustrate your answer necessary with the help of neat sketches.
  5. Discuss the reaction, mechanism wherever necessary.
  6. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION - A**

1. a) What are composites? What are the basic ingredients of composites? 6  
b) Discuss the classification of composites on basis of matrix? Give examples of each class. 7

**OR**

2. a) Discuss the selection criteria for materials & composite formation. 5  
b) Discuss the following factors that affects composites? 8
  - i) Bonding
  - ii) Wettability
  - iii) Surface tension
  - iv) Compatibility ratio
3. a) Discuss preparation, properties & application of Epoxy thermoset resin in detail. 7  
b) Explain cross linking mechanism of unsaturated polyester resin? 7

**OR**

4. a) Discuss the following matrix materials in detail. 9
  - i) Polymer matrix composite
  - ii) Metal matrix composite
  - iii) Ceramic matrix composite  
b) Explain thermoplastic & thermoset resin materials used in making of composites. 5
5. Explain manufacturing process, properties and application of carbon fiber? 13

**OR**

6. a) What do you mean by interphase? Discuss the role and behaviour of interphase in composite. 6

- b) What do you mean by resin transfer moulding? Discuss its types and applications. 7
- in composite technology.

**SECTION – B**

7. a) Differentiate between open molding and close molding process used in polymer composite technology. 7
- b) What do you mean by RTM? Give its process detail in making of composite. 7

**OR**

8. What are Additives? Explain its role in making & improving the performance of polymer composites. Discuss the requirement which a material should have to act as additives. Give selection criteria of additives in composite. 14
9. a) How modification and advancement can be made in conventional composite to make it advance composite?
- b) Explain pultrusion process for composite manufacturing in detail with the help of neat sketch.

**OR**

10. Explain with neat sketch the following processing techniques, with it's application, advantages & limitations
- i) Resin Transfer moulding
  - ii) Filament winding
11. a) Discuss advantages & limitations in design of composites.
- b) Discuss the importance of composite in area of
- i) Civil engineering
  - ii) Aircraft & Aerospace

**OR**

12. State the application of different composites in field of
- i) Textile Industry
  - ii) Civil Engineering
  - iii) Chemical Industry
  - iv) Electrical & Electronics

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