

B. Tech. Seventh Semester (Polymer (Plastic) Technology) (CGS)
11137 : Elective - I : Polymer Blends and Composites : 7 PP 04

P. Pages : 2

Time : Three Hours



AU - 2942

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 cell phone is strictly prohibited in exam.
 8. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What do you mean by compatible and incompatible polymer blend? Explain the properties and application of PPO-PS blend. **5**
b) What are the polymer alloy? Explain in detail the compatibilization mechanism of polymer alloy. **9**

OR

2. a) Discuss in detail the following criteria of compatibility for polymer blends : **9**
i) Thermodynamic Compatibility
ii) Solubility Parameter
iii) Single Glass Transition Temperature
b) Explain the melt mixing process for preparing polymer blend. **5**
3. What are the characteristics and types of good impact modifiers? **13**
Discuss in detail the toughening mechanism in elastomer modified polymer blends.

OR

4. a) Discuss the effect of blend type and rubber content on impact strength of polymer blend. **6**
b) Explain in detail the transition behaviour of polymer blend. **7**
5. Explain in detail the following polymer blends : **13**
i) ABS + PC
ii) PP + EPDM
iii) PPO + PS

OR

6. Discuss the properties, application and preparation method of following blends : **13**
- i) Blends based on PVC
 - ii) Blends based on PE
 - iii) Rubber - rubber polyblends.

SECTION - B

7. a) What do you mean by polymer composites? Discuss in detail the classification of polymer composites. **7**
- b) Explain in detail the effect of orientation of fiber reinforcement on the properties of composite with the help of neat sketch diagram. **7**

OR

8. a) Discuss the criteria of selection for material and reinforcement for polymer composites. **7**
- b) Explain the various fundamentals of polymer composites and their role in polymer composite. **7**
9. Explain in detail any one process of manufacturing glass fiber along with its properties and applications. **13**
- http://www.sgbauonline.com

OR

10. Explain following processing technique for preparing polymer composites : **13**
- i) Pultrusion.
 - ii) Filament Winding.
11. a) Discuss the design aspects of composites for flat sheet structures. **6**
- b) Discuss the various defects while processing polymer composites and remedies over it, by giving suitable example. **7**

OR

12. Explain the applications of polymer composites in the following sector : **13**
- i) Aerospace
 - ii) Automobile
 - iii) Civil and Construction.
