

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1736

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Unique Paper Code : 6092013601

Name of the Paper : Polymer Blends and Composites

Name of the Course : **B.Sc. (H) Polymer Science - UGCF**

Semester : VI

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **four** questions in all.
3. Draw neat and labelled diagram wherever necessary
4. Each question carries **15** marks. Each part carries equal parts.
5. All parts of a single question should be attempted at one place in continuation.

Q1.

- (a) What are the differences between polymer blends and polymer alloys?
- (b) Discuss the applications of Interpenetrating Polymer Network (IPN).
- (c) Explain Flory-Huggins theory of polymer blends.

Q2.

- (a) Describe the methods of polymer blending.
- (b) Illustrate the factors affecting miscibility of polymer blends.
- (c) Write short notes on (1) UCST and, (2) LCST

Q3.

- (a) Discuss the primary differences between SEM and TEM for polymer blend analysis.
- (b) Discuss the characterization of polymer blend by viscosity method.
- (c) Explain how do you determine the miscibility of a polymer blend using DSC.

P.T.O.

Q4.

- (a) Discuss the differences between thermoplastic matrix and high-performance thermoset.
- (b) Discuss various factors affecting reinforcements.
- (c) What is dispersed phase in polymer composite? Explain reinforcing and non-reinforcing fillers with suitable examples.

Q5.

- (a) Describe reaction transfer molding for polymer composite.
- (b) Derive the "Rule of mixtures" for a unidirectional fibre composite.
- (c) Write a short note on
 - (a) Prepreg technology
 - (b) Filament winding process
 - (c) Gibb's phase rule