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(c) Explain Sandwich Structure and Cellular structure
of FRP (Fibre reinforced polymer composites).

(3 × 5)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5518

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Unique Paper Code : 6092013601

Name of the Paper : Polymer Blends and Composites

Name of the Course : B.Sc. (Hons.) 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. Question No. 1 is compulsory.
4. Draw neat and labelled diagram wherever necessary
5. Attempt all parts together

1. (a) Explain the synergistic effect in polymer blends with suitable example.
(b) What are the thermodynamic criteria for miscibility in a polymer blend system?
(c) Why longitudinal modulus is always greater than transverse modulus?
(d) Why wetting of the fibres is important? List the important aspects that affect the wetting of the fibres?
(e) Two miscible polymers A and B are blended in weight ratio of 40:60. If the glass transition Temperature, (T_g) of polymer A is -10°C and that of polymer B is 70°C , calculate the T_g of the blend. (5×3)
2. (a) What do you understand by compatibilization? List the common methods of compatibilization with examples.
(b) Describe IRENMR techniques for characterizing polymer blends.
(c) Distinguish nucleation and growth and spinodal decomposition mechanisms. (3×5)

3. (a) Illustrate role of Maleic Anhydride grafted polymers in blend Technology with suitable example.
(b) What is engineering Polymer Blends? Discuss miscible and immiscible polymer blend with thermodynamic approach.
(c) Write a short note on Semi-IPN, Sequential-IPN. (3×5)
4. (a) What are composite materials? How do polymer composites differ from polymer blends? Give examples.
(b) Explain the role of reinforcing phase and matrix phase in the formation of polymer composites.
(c) What is Resin transfer molding process and name any two products manufactured by the same process (3×5)
5. (a) Describe Pultrusion Process with neat and clean diagram.
(b) Derive the rule of mixtures for the modulus of elasticity of a fiber-reinforced composite, if a stress is applied perpendicular to the axis of the fibers.