

Reg No.: _____

Name : _____



Jyothi Engineering College(Autonomous)
M.Tech Degree S1 (R) Examination, December 2025 (2025 Scheme)

25PIAT111- COMPOSITE MATERIALS



Total Mark: 60

PART A

Answer All Questions

1. Explain the classification of composites based on reinforcement and matrix. Give suitable examples for each type. CO1 (5)
2. Differentiate between continuous and discontinuous fibre composites. How does fibre orientation affect the strength of composites? Give examples. CO2 (5)
3. Explain the hand lay-up process used in the manufacturing of PMC. State its steps, materials used, and applications. CO3 (5)
4. Explain the sol-gel process for making Ceramic Matrix Composites. List the basic steps and applications. CO4 (5)
5. What are green composites? State their advantages and two applications. CO5 (5)

PART B

Answer Any Five Question(s)

6. Describe types and functions of reinforcements in composites. Also explain matrix role and compare dispersion, particle and fibre-reinforced composites with examples. CO1 (7)
7. Explain composite materials, their classification, applications, and advantages over metals. CO1 (7)
8. Explain the strengthening mechanisms in composite materials. Describe the significance of aspect ratio and critical fibre length in improving composite strength. CO2 (7)
9. What is fibre-matrix interface? Explain how interface strength is measured and give two examples of PMC systems. CO3 (7)
10. Compare Hot Pressing and Chemical Vapour Infiltration (CVI) in fabricating CMCs based on steps, temperature, microstructure and applications. CO4 (7)
11. Explain nanocomposites – their synthesis, properties, and applications. Also state the need for surface metal matrix composites (SMMCs) in engineering. CO5 (7)
12. Compare short-fibre and continuous-fibre composites with respect to strength, load transfer, and applications. Explain how the rule of mixtures predicts composite stiffness. CO2 (7)
