

Code No: R164103D

R16

Set No. 1

IV B.Tech I Semester Advanced Supplementary Examinations, May - 2022

ADVANCED MATERIALS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any FOUR questions from Part-B

PART-A (14 Marks)

1. a) Explain the characteristics of silicon carbide [3]
b) Write the applications of MMC [3]
c) What are the advantages of tape laying process [2]
d) What is the behavior of stress-strain lamina [2]
e) What are the applications of shape memory alloys [2]
f) Define and explain zero-dimensional material [2]

PART-B (4x14 = 56 Marks)

2. a) Write in detail about Fiber Reinforced Composites [7]
b) What is Kevlar? Explain in detail. [7]
3. a) Write the classification of MMC [7]
b) What are the applications of PMC? Discuss. [7]
4. a) What are the merits, demerits, and applications of RTM [7]
b) What are the merits, demerits, and applications of Pultrusion [7]
5. a) Explain the steps involved in reduction of Hooke's Law in 3D to 2D [7]
b) Discuss the relation between compliance matrix Elements and Engineering constants. [7]
6. a) How shape memory alloys are prepared? [7]
b) Write the advantages, disadvantages and applications of FGM [7]
7. What are nanowires and nanotubes? Explain in detail and give their applications [14]

