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10AU663

Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Composite Materials

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Define Composite Materials and classify them. (06 Marks)
b. List out the different types of Reinforcement and mention the properties of reinforcement. (08 Marks)
c. Write a short note on laminated composites. (06 Marks)
- 2 a. With a neat sketch, explain Hand Layup technique for composite materials. (07 Marks)
b. Explain Filament winding process, with a neat sketch. (07 Marks)
c. What is Curing? Differentiate open and closed mold processing of composites. (06 Marks)
- 3 a. Describe briefly with a neat sketch, pultrusion process for production of composite materials. Also mention advantages, disadvantages and applications. (10 Marks)
b. Write a short note on :
i) Injection molding ii) Pulforming process. (10 Marks)
- 4 a. What are the basic requirements of tools in fabrication of composites? (05 Marks)
b. What are the limitations / drawbacks of the composite tooling materials? (05 Marks)
c. Explain why use adhesives? What are major classes of adhesive and also mention advantages and disadvantages of adhesive bonding of composites? (10 Marks)

PART – B

- 5 a. List out the applications in : i) Automobile Industry ii) Electrical and Electronic
iii) Recreational and sports iv) Aircraft. (10 Marks)
b. In detail, explain the selection of matrix in Metal matrix composites (MMC). (10 Marks)
- 6 a. List the important requirements of reinforcement materials, in MMC. (05 Marks)
b. What is the need for developing MMC? (05 Marks)
c. Name the matrix and fiber used in metal matrix composites and its applications. (05 Marks)
d. Write about advantages of MMC's. (05 Marks)
- 7 a. Describe Powder Metallurgy techniques with a flow chart for fabrication of metal matrix composites. (10 Marks)
b. With a neat sketch, explain the production of Aluminum based composites using particulates by liquid Metallurgy techniques. (10 Marks)
- 8 a. Describe about Mechanical and wear properties of MMC's. (05 Marks)
b. Describe the effects of size, shape and distribution of particulars on properties of MMC's. (10 Marks)
c. Write a short note on Shape Memory Alloys. (05 Marks)

Important Note - 1. On completing your answers, carefully draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.