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10AU663

**Sixth Semester B.E. Degree Examination, June/July 2015**  
**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 material. Explain the need of composite material. (05 Marks)  
b. Differentiate between thermo – plastics and thermo sets. (05 Marks)  
c. What are the advantages and disadvantages of composite materials? (10 Marks)
  
- 2 With a neat sketch, explain the following processes :  
a. Injection modeling (07 Marks)  
b. Filament winding process (07 Marks)  
c. Pultrusion. (06 Marks)
  
- 3 a. With a neat sketch, explain water jet cutting of composites. (10 Marks)  
b. Explain the different types of joining of polymer matrix composites. (10 Marks)
  
- 4 Explain the applications of composites in the following fields :  
a. Automobile industry  
b. Marine industry  
c. Electrical and electronics industry  
d. Recreational and sports equipments. (20 Marks)

**PART – B**

- 5 a. Explain boron fibers and alumina fibers which is used as a reinforcement materials in metal matrix composites. (10 Marks)  
b. What are the advantages, limitations and applications of MMC's? (10 Marks)
  
- 6 a. With a neat sketch, explain the poser metallurgy technique. (10 Marks)  
b. With a neat sketch, explain the squeeze casting of metal matrix composites. (10 Marks)
  
- 7 a. Discuss the physical and mechanical properties of metal matrix composites. (12 Marks)  
b. List the various advantages of MMC's over other types of composite materials. (08 Marks)
  
- 8 a. Explain pseudo elasticity in shape memory alloys. (05 Marks)  
b. With a neat labeled diagram, discuss any two applications of shape memory alloys. (10 Marks)  
c. Discuss the future potential of composites. (05 Marks)

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Important Note : 1. On completing your answers, compulsorily 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.