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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2012

MANUFACTURING ENGINEERING

SEVENTH SEMESTER

MF 9027 PROCESSING OF PLASTICS AND COMPOSITE MATERIALS

(Regulation 2008)

Time : 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Classify Composite Materials.
2. How transparency is obtained in plastics?
3. What is parison and how it is produced?
4. What are the requirements an extruder has to satisfy?
5. What are the principles to be followed while machining plastics?
6. What is self tapping screw? How many times you can screw and unscrew it?
7. What is the need for adding catalysts and accelerators to the resin system?
8. What do you mean by BMC?
9. What is the relationship between porosity and particle size in PM route?
10. List any four applications of metal matrix composites.

Part – B (5 x 16 = 80 marks)

11. With sketches briefly explain the various methods used for welding of plastics.
12. a) With figures explain the mechanism involved, merits and disadvantages of different types of extrusion processes.

OR

- b) (i) How bottles are produced explain with neat sketches.
- (ii) With figures describe the procedure and mechanism involved in Screw type injection moulding.

13. a) Discuss the chemical structure, properties and uses of any two thermoplastics and any two thermoset plastics.

OR

- b) With a schematic diagram explain the fabrication of
- (i) Aramid fibers
 - (ii) Boron fibers
 - (iii) Carbon fibers.

14. a) Discuss the procedure involved in filament winding, pultrusion and compression moulding of polymer matrix composites.

OR

- b) With neat sketch explain sheet moulding compound systems used for manufacturing polymer matrix composites.

15. a) Discuss the salient features, procedure and mechanism involved in powder metallurgy and diffusion bonding used for manufacturing metal matrix composites.

OR

- b) Explain with neat sketches the processing of metal matrix composites :
Stir casting, Squeeze casting and CVD process.