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B.E. (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOVEMBER 2011

ANNA UNIVERSITY CHENNAI

MANUFACTURING ENGINEERING

SEVENTH SEMESTER – (REGULATIONS 2008)

MF 9027 PROCESSING OF PLASTICS AND COMPOSITE MATERIALS

Duration: 3 hours

Max. Marks: 100

Answer All Questions

Part – A (10 x 2 = 20 Marks)

1. How transparency is obtained in plastics?
2. Name any two natural composites and state their matrix and reinforcements.
3. What is parison and how it is produced?
4. What are the requirements of an extruder?
5. What is self tapping screw? How many times it can be screwed and unscrewed?
6. What are the precautions to be followed while machining plastics?
7. What is the need for adding catalysts and accelerators to the resin system?
8. What is autoclave moulding?
9. What is the relationship between porosity and particle size in PM route?
10. What do you mean by BMC?

Part – B (5 x 16 = 80 Marks)

11. With sketches brief out the various methods used for welding of plastics.
12. a) (i) With sketches explain the production of PVC pipes.
(ii) With sketches explain the production of packing films.
(Or)
b) (i) How bottles are produced explain with neat sketches.
(ii) Explain matched die moulding process with neat sketches.

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

(Or)

b) With a schematic diagram explain the fabrication of

(i) Glass fibers (ii) Carbon fibers (iii) Aramid fibers.

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

(Or)

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

15. a) Explain the procedure involved, applications and the difficulties encountered in the following methods of manufacturing of metal matrix composites.

(i) Stir casting

(ii) In-situ Processes

(iii) Diffusion bonding.

(Or)

b) Discuss the salient features, procedure and mechanism involved in the powder metallurgy process used for manufacturing metal matrix composites.