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Question Paper Code : Q 2723

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Annual Pattern — First Year

Mechanical Engineering

ME 1 X 01 — MANUFACTURING TECHNOLOGY — I

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a split pattern?
2. What are the important factors affecting selection of pattern material?
3. What factors affect the depth of penetration in arc welding?
4. What are the functions of coatings on shielded electrodes?
5. What is redrawing and when it is used?
6. For Drawing, what is the significance of strain hardening co-efficient?
7. What is cold spinning operation?
8. What is peen forming?
9. Why is the whole of the material (billet) put in the container for extrusion not extruded?
10. What mechanism creates the pressure for plastic injection moulding?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the operations of vertical centrifugal casting with neat sketch. (10)

(ii) Describe the various methods of sand testing techniques. (6)

Or

(b) (i) Write short notes on :

(1) Lost wax process.

(2) Ceramic mould. (12)

(ii) Discuss the various allowances used in pattern making. (4)

12. (a) (i) Explain the principles of resistance welding with neat sketch. (8)

(ii) Explain in detail the classification of structural adhesives. (8)

Or

(b) (i) Describe the principles for minimizing distortion in weldments. (8)

(ii) Discuss the following :

(1) Spot welding

(2) Thermit welding with neat sketches. (8)

13. (a) (i) Discuss the general design considerations for forgings. (6)

(ii) Explain hot and cold extrusion with neat sketch. (10)

Or

(b) (i) Explain the types of rolling mills. (8)

(ii) Explain the principles of rod and wire drawing process. (8)

14. (a) (i) Show with schematic sketches the excessive, correct and insufficient clearances in sheet metal sheering process, indicating the fracture propagation in each case. (8)

(ii) Explain the characteristics of super plastic forming. (8)

Or

(b) (i) Explain the process of stretch forming with neat sketch. (8)

(ii) How does the side wall thickness of draw component vary? Explain the causes with neat sketch. (8)

15. (a) (i) Explain the rotational molding process with neat sketch. (8)
(ii) Explain fusion and solvent methods of thermoplastics. (8)

Or

- (b) (i) Explain the process of blow moulding. (8)
(ii) Explain the working principle of compression moulding process with neat sketch. (8)
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