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Question Paper Code : 11517

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Third Semester

Mechanical Engineering

ME 2201/114306/ME 32/10122 ME 302/PR 1204/080120005 — MANUFACTURING
TECHNOLOGY — I

(Common to Industrial Engineering and Industrial Engineering and Management)

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by core print?
2. Name the different melting furnaces employed for metal casting.
3. What is meant by 'carburising flame' in gas welding?
4. What is the principle of Thermit welding?
5. Working on the metal Lead at room temperature, is considered to be hot working. Why?
6. List two advantages of cold extrusion over hot extrusion.
7. What is 'Lancing' operation that is done on sheet metals?
8. What are the limitations of explosive forming?
9. Name two important differences between thermoplastics and thermosetting plastics.
10. What is film blowing?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the various pattern allowances which can be quantitatively specified. (8)
- (ii) What are the desirable properties of moulding sand for sand casting? Explain briefly each one. (8)

Or

- (b) (i) With illustrative sketches, explain the various casting defects indicating, their causes and remedies. (8)
- (ii) Explain the stages of preparing shell mould, with suitable sketches. List the unique advantages of making castings in shell moulds. (8)
12. (a) (i) Discuss the gas welding process and the necessary equipments needed with suitable sketches. (10)
- (ii) Explain the metal arc welding process with a sketch. (6)

Or

- (b) (i) Explain the plasma arc welding process with a neat sketch and list out its advantages. (10)
- (ii) Sketch the different types of weld defects and mention how they occur. (6)

13. (a) With neat sketches, explain the following smith forging operations :
- (i) Upsetting (2)
- (ii) Bending (3)
- (iii) Swaging (3)
- (iv) Fullering (3)
- (v) Punching and drifting (3)
- (vi) Edging. (2)

Or

- (b) With suitable sketches, explain the following :
- (i) Stages involved in 'Shape rolling' of structural sections. (5)
- (ii) Cold extrusion forging. (5)
- (iii) Seamless tube drawing. (6)

14. (a) Sketch and explain the following sheet metal bending operations :
- (i) Sheet bending using V-die. (4)
 - (ii) Bending edge of a sheet using wiping-die. (4)
 - (iii) Roll bending. (4)
 - (iv) Bending a sheet to a round shape using four-slide machine. (4)

Or

- (b) (i) With a neat diagram, explain the principle of explosive forming. (8)
 - (ii) Explain the hydro forming process with neat sketches. Make a brief comparison of this process with conventional deep drawing. (8)
15. (a) (i) Describe briefly the plunger type injection moulding process for producing plastic components. (8)
- (ii) Explain, with neat diagrams, the thermoforming process. State its advantages over other processes. (8)

Or

- (b) With neat sketches, explain the working principle and applications of the following moulding processes for plastics :
- (i) Compression moulding. (8)
 - (ii) Transfer moulding. (8)