

C 3317

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fourth Semester

Mechatronics Engineering

MH 1251 — MANUFACTURING TECHNOLOGY

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the principal constituents of foundry sand?
2. Define die casting mould.
3. What are the general advantages of forging as a manufacturing process?
4. Define : Blanking and punching.
5. Why rake and clearance angles are provided on cutting tools?
6. Why are drilled holes superior to punched holes in pressure vessel work?
7. What is a drawbar on a milling machine? What is its function?
8. Why is a soft type grinding wheel used on hard materials and vice versa?
9. Differentiate between brazing and braze welding.
10. What is magnetic arc blow and what effect it has on the welding process?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe shell moulding in brief and when it is used? (10)
- (ii) Describe CO₂ process of making cores. (6)

Or

- (b) (i) What are the defects caused by pattern and moulding box equipment. (8)
- (ii) Discuss the relative advantages and disadvantages of various types of furnaces used in foundry shops. (8)
12. (a) (i) What are the advantages and limitations of hot rolling? (10)
- (ii) Discuss the advantages of extrusion process. (6)

Or

- (b) (i) Define the following terms in cold working of metals, shearing, notching slugging, beading, embossing and bulging. (9)
- (ii) Explain Roll-forming process with a neat sketch. (7)
13. (a) (i) Describe the process of cutting internal threads on a lathe. (8)
- (ii) Describe two methods of holding and driving straight shank twist drills. (8)

Or

- (b) (i) Describe the function of the margin, the point, the flutes, the lips, the web and the shank of a two lipped twist drill. (9)
- (ii) Name and describe three methods of turning tapers on a lathe. (7)
14. (a) (i) Describe the various steps to manufacture a bevel gear on a milling machine. (10)
- (ii) For What types of jobs you will prefer hobbing operation for generating gear and where the shaping operation? (6)

Or

- (b) (i) Select a proper grinding wheel for cylindrical grinding of cast iron work piece. Fine finishing is desired. (8)
- (ii) What is the difference between wheel dressing and wheel truing? (8)

15. (a) (i) What are the qualities of flame used for welding? How can you distinguish three types of welding flames and for what application these are used? (8)
- (ii) What are the common welding troubles ; causes and remedies for them? (8)

Or

- (b) (i) Compare gas-metal arc welding and gas-tungsten arc welding. (8)
- (ii) Explain the mechanism of metal transfer in MIG welding. (8)
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