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Question Paper Code : 40824

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Third Semester

Mechanical Engineering

ME 8351 – MANUFACTURING TECHNOLOGY – I

(Common to : Industrial Engineering/Industrial Engineering and Management/
Mechanical Engineering/(Sandwich)/Mechanical and Automation Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why casting process is preferred?
2. What are the different elements in gating system?
3. What are the characteristics of neutral flame?
4. What are the elements in thermit mixture?
5. Mention the stresses developed during metal forming process.
6. Explain the importance of heat treatment of forgings?
7. Name atleast six common deep drawing defects.
8. What are the factors influencing the bending opera?
9. What are the different methods used for making thermo-plastics products?
10. Compare thermo plastic and thermosetting plastic materials?

PART B — (5 × 13 = 65 marks)

11. (a) What are the different types of sand molding methods? Explain green sand molding with neat diagrams. (13)

Or

- (b) Explain the CO₂ molding process with neat diagram. Mention the advantageous and limitations of the process. (13)

12. (a) (i) What are the advantages and limitations of welding process? (6)

- (ii) Explain the principle of MIG welding process with neat diagram? (7)

Or

- (b) (i) What are the principle of GTA welding process with neat diagrams? (6)

- (ii) Explain the principle of Electron beam welding with neat diagrams. (7)

13. (a) (i) What are the different types of rolling mills used in rolling process? Explain with neat diagrams. (7)

- (ii) What are the rules followed during machine forging? Explain. (6)

Or

- (b) (i) Explain the principle of rotary swaging and roll forging process with neat diagrams. (8)

- (ii) Explain the principle of hydrostatic extrusion process with neat diagram. (5)

14. (a) (i) Explain the explosive forming technique with neat diagram. (6)

- (ii) What is shear forming? Explain. (7)

Or

- (b) (i) What is Strech forming? Explain the process with neat diagram. (6)

- (ii) Describe the electromagnetic pulse forming process with neat diagram. (7)

15. (a) (i) What are the different types of plastics? Explain. (5)
(ii) Explain the thermoforming process with neat diagrams. (8)

Or

- (b) (i) What are the general properties of plastics? Explain. (5)
(ii) What is the process used for manufacturing of seamless plastic bottles? Explain the process with neat diagrams. (8)

PART C — (1 × 15 = 15 marks)

16. (a) (i) How the IC engine rod is made? Explain the process with neat diagrams. (12)
(ii) Name the important process variables in drawing, and explain how they affect the drawing process. (3)

Or

- (b) Mention the defects in casting process. Explain causes and remedies of each defect with neat diagram. (15)