Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 81651

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

Third Semester

Mechanical Engineering

ME 3393 — MANUFACTURING PROCESSES

(Common to : Automobile Engineering /Industrial Engineering /Industrial Engineering and Management/Mechanical Engineering (Sandwich)/Mechanical Engineering (Specialised in Smart Manufacturing))

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate sand blasting and shot blasting.
2. Define the term fettling.
3. Why flux is coated on filler rods?
4. Define Friction welding.
5. Differentiate compound dies and progressive dies.
6. Differentiate hot and cold forging.
7. What do you understand by springback in bending operation?
8. What is peen forming?
9. Define reinforced plastics and where it is applied.
10. Define pressure forming.

PART B — (5 × 13 = 65 marks)

11. (a) Enumerate the steps in sequence for producing shell moulding.

Or

(b) Briefly explain the principle operation advantages, disadvantages and application of CO_2 moulding.

12. (a) (i) Describe submerged arc welding process with neat diagram. (7)

(ii) State its advantages and application of submerged arc welding process. (6)

Or

(b) Briefly explain the principle of operation, advantages and limitations of Electron beam welding.

13. (a) (i) Explain in detail about the defects occurred in forging operations. (7)

(ii) Draw a simple sketch showing rolling process and make a short note on deformation of grains in rolling. (6)

Or

(b) With neat sketches, explain the following smith operation. (i) Upsetting (ii) Bending (iii) Swaging (iv) Fullering. (4+3+3+3)

14. (a) Explain with necessary sketch, application of following sheet metal forming operation: Shaving, Slitting and Notching. (4+4+5)

Or

(b) Explain the steps involved in manufacturing an automobile body panel with neat sketches.

15. (a) Describe briefly the plunger type injection, moulding process for producing plastics components. State its advantages and limitation.

Or

(b) Discuss in detail the various thermosetting and thermoplastic composites and their application.

PART C — (1 × 15 = 15 marks)

16. (a) Briefly explain a suitable manufacturing techniques for producing plastic hollow pipes and plastic water tanks.

Or

(b) Develop the technological steps for manufacturing a hook with best mechanical properties. Sketch the various stages and name the operations.