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

Question Paper Code : 40827

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

Fourth Semester

Mechanical Engineering

ME 8451 — MANUFACTURING TECHNOLOGY — II

(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 — ($10 \times 2 = 20$ marks)

1. List the requirements of tool material.
2. Define chip thickness ratio.
3. Write the function of a half-nut in a center lathe.
4. Why lathe beds are made of cast Iron?
5. List out various operations performed on shaper.
6. Define boring and tapping operations.
7. Write the grinding wheel specification.
8. Differentiate between pull and push broaching processes.
9. Define machining center.
10. What is ATC?

PART B — ($5 \times 13 = 65$ marks)

11. (a) List the properties required for cutting fluids Discuss the characteristics of various cutting fluids used in machining process.

Or

(b) Define orthogonal cuffing process. Explain the chip formation mechanism with suitable sketch.

12. (a) Draw the setup required for cutting external threads on a center lathe. Explain clearly the thread cutting operation.

Or

(b) Classify the automatic lathe machines. Differentiate between capstan lathe and turret lathe.

13. (a) List the milling cutters used for different milling operations with neat sketches. Explain various operations performed on drilling machine.

Or

(b) Describe the manufacturing of a gear using gear hobbing process with neat sketch. Explain the process of gear finishing.

14. (a) What are continuous broaching machines? Explain the working principle with neat sketch.

Or

(b) Define loading, dressing, truing and balancing in grinding wheel. Describe the construction and working of a centerless grinding machine with neat sketch.

15. (a) Explain the role of preparatory functions. Give the functioning of any one G — code used for this purpose.

Or

(b) Explain the process of wafer preparation.

PART C — (1 × 15 = 15 marks)

16. (a) (i) How universal milling machine tool is different from horizontal and vertical milling machine tools?

(ii) In an orthogonal cutting tool, what are the important angles to be maintained? Explain the influence of each of these angles on the machining performance.

Or

(b) (i) Explain the constructional features of CNC machine tools with suitable diagram.

(ii) Write a manual part program for the component shown in figure 1 using Linear interpolation and circular interpolation.

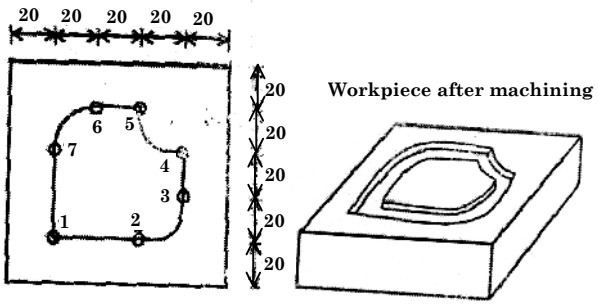

Fig. 1