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Question Paper Code : 12344

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Fourth Semester

Mechanical Engineering

ME3493 – MANUFACTURING TECHNOLOGY

(Common to : Mechanical Engineering (Sandwich)/Mechanical Engineering
(Specialised in Smart Manufacturing)/Mechatronics Engineering/Robotics and
Automation)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. List the various metal removal processes.
2. What are the factors responsible for Built-up edge in cutting tools?
3. Distinguish between Capstan lathe and Turret lathe.
4. What is the purpose of a mandrel? How many types of mandrels are there in common use?
5. Write down any four operations performed by a shaper.
6. Define Face Milling.
7. State the advantages of CNC machines.
8. Write about the 'tool magazine' in a CNC machine.
9. List the methods of creating part programming.
10. Distinguish between incremental and absolute system.

PART B — (5 × 13 = 65 marks)

11. (a) With reference to orthogonal cutting , explain the following terms shear stress in shear plane, shear strain, cutting ratio and shear angle.

Or

- (b) (i) Explain different types of chips produced in cutting with neat sketches. (9)
- (ii) Describe any four cutting tool materials used in metal cutting. (4)
12. (a) List various of feed mechanism and explain briefly about tumbler gear reversing mechanism with neat sketch.

Or

- (b) Illustrate the working principle of Capstan and Turrent lathes with neat sketch.
13. (a) With a simple sketch, explain the working of the crank and slotted link quick return motion mechanism used in shaper.

Or

- (b) Explain the twist drill nomenclature and define various elements of twist drill.
14. (a) Explain the working of a CNC machine tool with the help of a diagram. Also state advantages and limitations of CNC machines.

Or

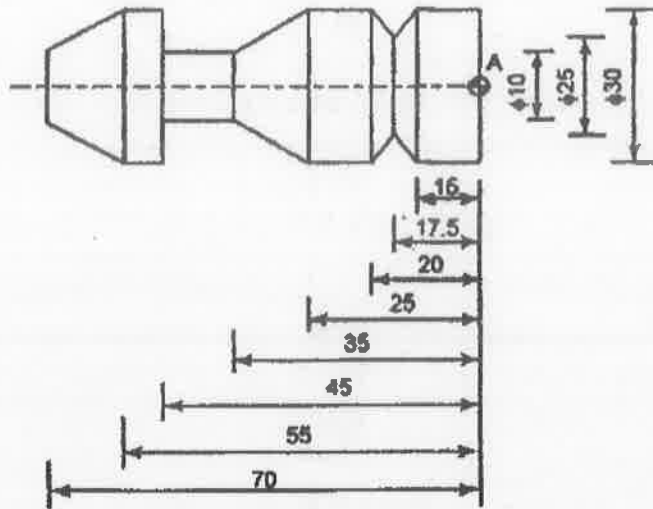
- (b) Discuss the different data input devices of NC machine tool.
15. (a) Illustrate in detail about the types of interpolations used in CNC systems.

Or

- (b) Explain in detail about Setting up a CNC machine for machining.

PART C — (1 × 15 = 15 marks)

16. (a) Prepare a part program to drill the given component shown in the below Figure.



All dimensions are in mm.

Or

- (b) Evaluate the operations drilling, reaming, boring, tapping for a component with neat sketch.

