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

Question Paper Code: 1253438

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV/ DEC 2024
Third Semester
Robotics and Automation
U23RAT34 – MANUFACTURING TECHNOLOGY
(Regulation 2023)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. Define machinability of metal.

2. Compare orthogonal and oblique cutting.

3. Mention any two limitations of a Centre lathe.

4. List out the different types of chucks used in a machine shop.

5. Write down any four operations that can be performed in a drilling machine.

6. Write nomenclature of plain milling cutter.

7. What is meant by ‘tool magazine’ in a CNC machine?

8. Compare a closed loop NC system with open loop system.

9. Tell about Subroutine.

10. Write short notes about adaptive control.

PART – B (5 x 16 = 80 Marks)

11. (a) Explain the properties of cutting tool materials, essential requirements and classification of tool materials. (16)

(OR)

(b) How chips are classified in metal cutting? What are the conditions for the formation of different types of chips? (16)

12. (a) With a neat sketch explain the working principle of turret lathe and Geneva mechanism of turret lathe. (16)

(OR)

(b) Write short notes on parallel action and progressive action multi spindle automatic lathe. (16)

13. (a) Sketch the following operations performed in drilling machine. (i) Drilling (ii). Reaming (iii). Boring (iv). Counter boring (v). Counter sinking (vi). Spot facing (vii). Tapping (viii). Trepanning. (16)

(OR)

(b) Describe with neat sketch the drive mechanisms used in shaper. (16)

14. (a) Describe the spindle drives, feed drives, and slide ways used in CNC machines.(16)

(OR)

(b) Elaborate the working of a NC machine tool with the help of a diagram. Also state advantages and limitations of NC. (16)

15. (a) Write the part programming procedure with a suitable example. (16)

(OR)

(b) Discuss the various steps to be followed while developing CNC part program and also explain about linear and Circular interpolation. (16)

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