C **519B2** **Total pages: 2**

Register No: …… Name: .....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FOURTH SEMESTER B.TECH. DEGREE EXAMINATION(R,S), MAY 2024

Robotics and Automation

(2020 SCHEME)

Course Code : 20RBT204

Course Name : Manufacturing Processes

Max. Marks : 100 **Duration:3 Hours**

Scientific calculator and statistical table is allowed in the examination hall.

PART A

(Answer all questions. Each question carries 3 marks)

1. Explain rolling defects. List the names of four rolling defects.
2. Write three advantages of metal casting process.
3. Define weldability. List the factors affecting weldability?
4. Compare AC and DC welding supply based on efficiency, power consumption and electrodes.
5. With neat sketch explain the difference between up milling and down milling process.
6. What is the purpose of collet in milling machine.
7. Define Geometry and motion statements in CNC machining.
8. Describe the basic components of a CNC machine.
9. What is LIGA. Write five fabrication process composed in it.
10. Write three advantages and disadvantages of Fused Deposition Modeling (FDM).

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. With neat sketch explain direct and indirect extrusion. 14

OR

12. With neat sketch explain different forging methods such as open die forging and closed die forging. Explain the forging operations such as Edging, upsetting, Fullering and Swaging. 14

MODULE II

13. With neat sketch explain Gas Tungsten Arc Welding (GTAW) process. Write four applications of Gas Tungsten Arc Welding (GTAW) process. 14

OR

14. With neat sketch explain Resistance spot welding and Resistance seam welding. 14

MODULE III

15. With neat sketch explain Universal and Omniversal milling machines. 14

OR

16. Explain the difference between surface grinder and cylindrical centerless grinding operation.When would you choose one over the other? 14

MODULE IV

17. Describe the role of F, S, T and D codes in CNC machinig. 14

OR

18. Write the part program to get the inished component as shown in the figure from a raw material of 50 mm diameter. Take speed 900 rpm. Feed 150 mm/min. Use incremental dimentioning system. 14

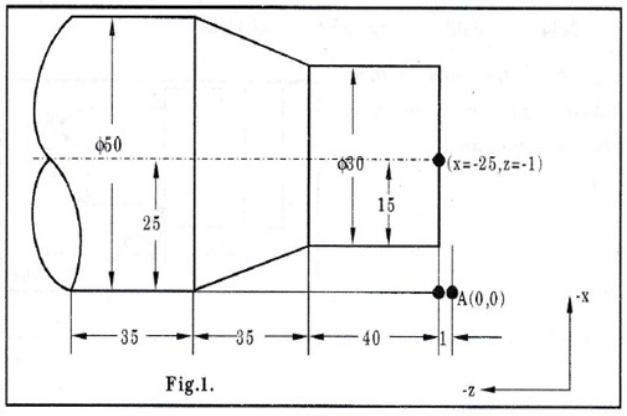

Fig.1.

MODULE V

19. With neat sketch explain the principle behind Ion Beam Machining (IBM). Write two advantages and limitations of IBM. 14

OR

20. With neat sketch explain the principle behind Ultrasonic Machining (USM). Write two advantages and limitations of USM. 14

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