

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FOURTH SEMESTER B.TECH DEGREE EXAMINATION (Regular), JULY 2022

ROBOTICS AND AUTOMATION
(2020 SCHEME)

Course Code : 20RBT204

Course Name: Manufacturing Processes

Max. Marks : 100

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

1. What are the various types of patterns used for casting process.
2. Differentiate Hot rolling and Cold Rolling.
3. Define straight polarity and reverse polarity in an arc welding process.
4. What are the advantages of ultrasonic welding process?
5. Distinguish between face milling and end milling.
6. Write the significance of jigs and fixtures.
7. What is absolute programming system.
8. Explain the significance of G-codes and M-codes in part programming.
9. What are the design considerations for Electrochemical Machining?
10. List the steps involved in LIGA process?

PART B

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

MODULE I

11. a) Explain various types of casting defects. (8)
b) With neat figures, explain the various forging methods. (6)

OR

12. a) With neat sketches, explain forward and backward extrusion. (6)
b) With the help of neat diagram, explain any four types of rolling mills. (8)

MODULE II

13. a) Explain the principle of friction welding. Give its advantages and applications. (8)
b) What is the purpose of soldering flux in soldering? List any two types of fluxes. (6)

OR

14. a) Explain the principle of plasma-arc welding. (6)

- b) Explain the various types of flames in a gas welding process. (8)

MODULE III

- 15. a) How is centerless grinding different from cylindrical grinding? (6)
- b) With a neat sketch, explain the various parts of a horizontal milling machine (8)

OR

- 16. a) Explain any four types of cutters used in a milling operation. (8)
- b) Explain various work holding devices in a milling machine. (6)

MODULE IV

- 17. a)

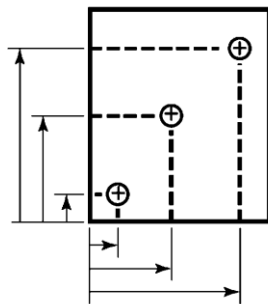


Fig. (a)

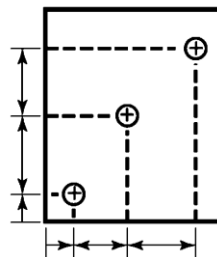


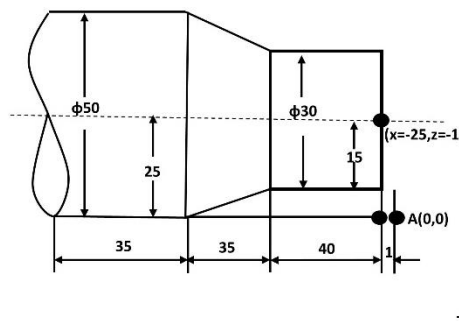
Fig. (b)

Figures above shown are positions of drilled holes in a workpiece. Two methods of measurements are shown as Fig. (a) and Fig. (b). Explain each method.

- b) Explain canned cycle with an example. (6)

OR

- 18. a) Explain the various statements in APT. (6)
- b) Write a part program to get the finished component as shown in Figure below from a raw material of 50 mm diameter. Take speed 900 rpm. Feed 150 mm/min. Use incremental dimensioning system. (8)



MODULE V

- 19. a) With a neat diagram, explain Laser Beam Machining? Mention its applications. (8)
- b) Explain Rapid Prototyping techniques. (6)

OR

20. a) What is Reverse Engineering? (2)
- b) With neat sketches, explain (i.) ultrasonic machining (ii.) water jet machining. (12)
