

Register No.: ..... Name: .....

## SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**FIFTH SEMESTER B.TECH DEGREE EXAMINATION (R), DECEMBER 2023**

**(2020 SCHEME)**

**Course Code : 20MET385**

**Course Name: Machine Tools Engineering**

**Max. Marks : 100**

**Duration: 3 Hours**

### **PART A**

***(Answer all questions. Each question carries 3 marks)***

1. Define Machining? Name different machining techniques.
2. List three applications of cutting fluids in metal cutting process.
3. Explain Spinning operation in lathe.
4. Differentiate headstock and tailstock in lathe machine.
5. List three applications of milling process.
6. Explain down milling process using a neat diagram.
7. What is incremental programming in CNC? Explain.
8. Explain continuous control in CNC.
9. List the advantages of USM process.
10. List the applications of wire-EDM.

### **PART B**

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

#### **MODULE I**

11. a) Using neat sketches explain the different types of chips formation in machining. (7)  
b) Explain chip breakers and describe the different types of chip breakers used. (7)

#### **OR**

12. A single point cutting tool is specified as 15, 15, 10, 10, 10, 15 (3 mm). Identify each specification and mark it in the three views of a single point cutting tool. (14)

#### **MODULE II**

13. Using a neat sketch explain the different parts of a lathe. (14)

#### **OR**

14. Differentiate turning and facing operations in lathe. Describe the different types of turning operation using neat sketches. (14)

**MODULE III**

15. a) Differentiate horizontal milling machine and vertical milling machine. (7)  
b) Explicate the different types of milling cutters used. (7)

**OR**

16. a) Elucidate the various operations that can be performed in a milling machine. (10)  
b) Explain two work holding devices used in a milling machine. (4)

**MODULE IV**

17. Elucidate the construction and operation details of CNC lathe. (14)

**OR**

18. Explain the construction and operation details of CNC milling machine. (14)

**MODULE V**

19. a) Explain the working of USM process using a neat sketch. (7)  
b) Elucidate the advantages, limitations and applications of EDM process. (7)

**OR**

20. a) Explain working principle of wire-EDM technique using a neat sketch. (10)  
b) List any four applications of Abrasive Water Jet Machining. (4)

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