

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

## SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**SIXTH SEMESTER B.TECH DEGREE EXAMINATION (R), MAY 2023**

**(2020 SCHEME)**

**Course Code : 20MET396**

**Course Name: Advanced Numerical Controlled Machining**

**Max. Marks : 100**

**Duration: 3 Hours**

### **PART A**

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

1. What are the applications of CNC machines?
2. Write a brief essay about the historical development and future development of NC machines.
3. What are the types of controllers available for CNC machines?
4. Explain Direct Numerical Control (DNC).
5. Distinguish between G code and M code.
6. What is absolute and incremental coordinate in CNC? Write down the codes.
7. Discuss where canned cycles can be implemented?
8. What is CAM? Name any three commercial CAM software.
9. Explain about automatic tool changers.
10. What are the feedback devices used in a CNC machine?

### **PART B**

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

#### **MODULE I**

11. Describe any seven applications of CNC machines in manufacturing (14)

**OR**

12. a) Illustrate a CNC milling center with proper diagrams. (7)  
b) Write down capabilities of a CNC Machine. (7)

#### **MODULE II**

13. What do you understand about adaptive controllers in CNC machines? Give an example. (14)

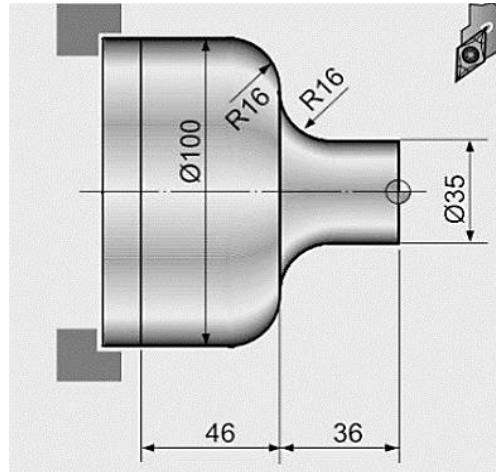
**OR**

14. Explain about different encoders and interpolators uses in CNC (14)

#### **MODULE III**

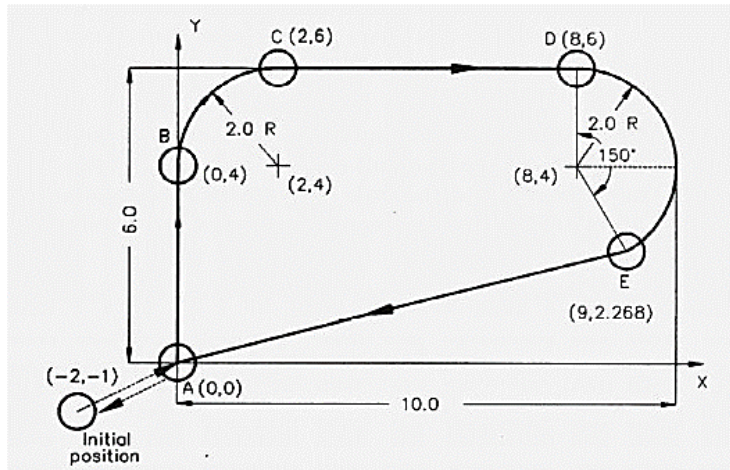
15. Prepare manual part programming for part shown in figure (14)

(all dimensions are in mm).



OR

16. Prepare manual part programming for part shown in figure (all dimensions are in inches).



(14)

**MODULE IV**

17. Explain how CAD/CAM systems are used to generate NC programmes.

(14)

OR

18. What is a CAM post processor and how does it work? Mention the names of three post-processors.

(14)

**MODULE V**

19. What are guideways in a CNC machine? Explain three types of guideways with figures.

(14)

OR

20. a) What are the CNC machine design considerations?  
 b) What are the various sensors and feedback devices used in CNC machines?

(7)

(7)

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