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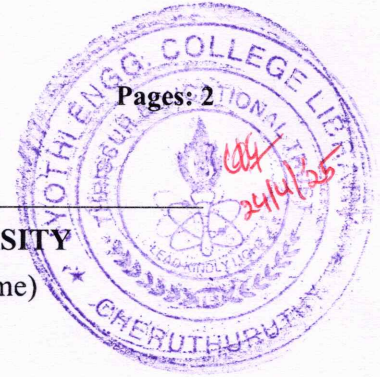
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Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S) Exam April 2025 (2019 Scheme)



Course Code: RAT454

Course Name: CNC MACHINES

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 3 marks.*

Marks

- |    |  |     |
|----|--|-----|
| 1  | List the different operations that can be performed in CNC machining centre. | (3) |
| 2  | What are the classifications of CNC turning machines?                        | (3) |
| 3  | Write a short note on spindle drives in CNC.                                 | (3) |
| 4  | Describe about preloading in ball screws.                                    | (3) |
| 5  | Write a short note on electro-magnetic analog position transducers.          | (3) |
| 6  | Mention the different G-codes with their applications.                       | (3) |
| 7  | What is contouring?  | (3) |
| 8  | What is the purpose of feedback drives in CNC systems?                       | (3) |
| 9  | Write briefly about the types of interpolators.                              | (3) |
| 10 | Briefly explain the functions of CNC systems.                                | (3) |

**PART B**

*Answer any one full question from each module, each carries 14 marks.*

**Module I**

- 11 a) Explain the working of CNC system with the aid of a block diagram. (14)

**OR**

- 12 a) Discuss in detail about CNC grinding machines. What are the types of CNC grinding machines. (14)

**Module II**

- 13 a) List out the different accessories of machining centers and their purposes. (14)



OR

- 14 a) Describe the different types of slideways used in CNC machine tools with the help of diagrams. (14)

**Module III**

- 15 a) Write an example of a manual part program for turning operations. (14)

OR

- 16 a) Compare digital incremental displacement measuring systems and digital absolute measuring systems. (14)

**Module IV**

- 17 a) Describe with the aid of a block diagram the principal components of a typical CNC system. (10)
- b) Explain briefly about point-to-point programming with example. (4)

OR

- 18 a) Write a part program example in APT. (14)

**Module V**

- 19 a) What are the different types of interpolation systems? Explain each one of them. (14)

OR

- 20 a) Explain CNC control systems. (8)
- b) Write a short note on programmable machine interface. (6)

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