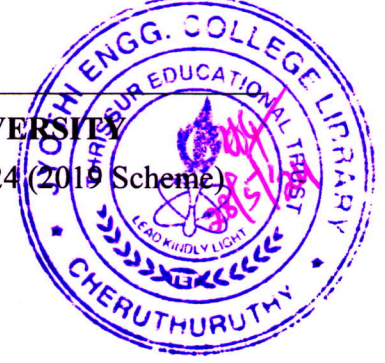


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree (R, S) Examination May 2024 (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 | Describe about CNC systems. | (3) |
| 2 | Describe briefly about machine centres. | (3) |
| 3 | Write the different types of spindle drives. | (3) |
| 4 | Write the functions of slideways in machines. | (3) |
| 5 | With the aid of 2 examples define the purpose of miscellaneous codes. | (3) |
| 6 | Describe briefly about manual part programming. | (3) |
| 7 | Write a short note on geometric statements in APT. | (3) |
| 8 | What is point-to-point programming? | (3) |
| 9 | Define interpolators. | (3) |
| 10 | What are programmable machine interfaces? | (3) |

PART B*Answer any one full question from each module, each carries 14 marks.***Module I**

- | | | |
|----|---|-----|
| 11 | a) List the advantages of CNC drilling. | (7) |
| | b) Mention the different steps in CNC drilling. | (7) |

OR

- | | | |
|----|---|-----|
| 12 | a) Enumerate the different features of CNC machining centres. | (7) |
| | b) Elaborate about CNC grinding. What are its salient features? | (7) |

Module II

- | | | |
|----|--|------|
| 13 | What are the special constructional features of CNC machine tools? | (14) |
|----|--|------|

OR

- | | | |
|----|---|------|
| 14 | List out the different accessories of machining centres and their purposes. | (14) |
|----|---|------|

Module III

- 15 a) Explain the working of digital incremental angular displacement measurement system with neat sketches. (9)
- b) List the various limitations of using an incremental type optical encoder? (5)

OR

- 16 a) Write an example of a manual part program for milling operation. (10)
- b) Why is grey encoding used in absolute encoders? (4)

Module IV

- 17 Explain the different post processor statements used in part programming. (14)

OR

- 18 a) With the help of a block diagram explain the various steps involved in computer aided part programming. (7)
- b) Explain the different programming procedures involved in CNC turning? (7)

Module V

- 19 Compare the advantages and disadvantages of hardware and software interpolations. (14)

OR

- 20 Describe the major features available in a typical CNC system. (14)
