

7E 7018	Roll No. <u>74</u>	Total No. of Pages : 2
	7E 7018	
	<p>B.Tech. VII Semester (Main) Examination, Dec. - 2015</p> <p>Mechanical Engineering</p> <p>7ME6.3A CNC Machines and Programming</p> <p>ME&PI</p>	

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 24

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly).

Unit - I

1. a) Define NC, CNC. Also explain their developments and improvements in their applications. (8)
- b) Compare NC machines with conventional machines and write down advantages of NC machines over conventional machines. (8)

OR

1. a) Define Automation. What are different types of Automation? Compare hard automation and soft automation. (10)
- b) Write down applications of Numerical control machines. (6)

Unit - II

2. a) Write down various design consideration of NC machines. (6)
- b) How many type of drive can be used in NC system ? Also write down about spindle and feed drive. (10)

OR

2. a) What do you meant by Architecture of NC system? Describe it briefly (6)
- b) Define sensors and their applications in Numerical control machines? Also write various types of sensors. (10)

Unit - III

3. a) "Use of canned cycle reduce the length of a manual part program". Justify this statement with suitable example. (12)
- b) What is the format of a block in manual part programming? (4)

OR

3. a) Write down the syntax for defining a geometry in computer- assisted part programming. Also name the four types of statements in a complete APT part program. (10)
- b) Define Automatic part program generation. (6)

Unit - IV

4. Write short notes on
- a) CAPP systems. (8)
- b) CMM (8)

OR

4. a) Describe NC simulation. What do you mean by kinematic simulation and volumetric simulation. Also write applications of volumetric simulation. (10)
- b) Explain 5-axis programming. (6)

Unit - V

5. a) What is the use of adaptive control in CNC machining? Describe with neat sketch. Also describe its types. (8)
- b) What is Die sinking operation? Explain and draw neat sketch wherever possible. (8)

OR

5. Write short note on following. (4×4)

- a) CAM
- b) CIM
- c) FMS
- d) Rapid product development