

Total No. of Questions : 8]

SEAT No. :

**P2805**

[Total No. of Pages : 2

**[6003]-530**

**T.E. (Robotics & Automation Engineering)**  
**FLEXIBLE MANUFACTURING SYSTEMS**  
**(2019 Pattern) (Semester - II) (311510 (A))**

*Time : 2½ Hours]*

*[Max. Marks : 70*

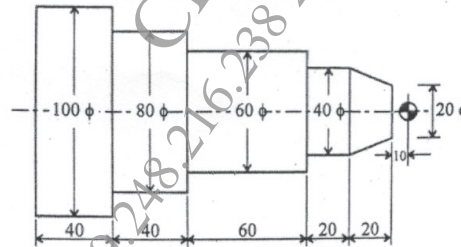
*Instructions to the candidates:*

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figure to the right indicates full marks.
- 3) Neat Diagram must be drawn wherever necessary.
- 4) Assume suitable data, if necessary.
- 5) Use of Logarithmic Table, Slide rule is Electronic pocket calculator is allowed.

- Q1) a)** What are the basic components of the NC system and explain the function of each component? [9]
- b) Describe various G and M codes used in CNC machines. [9]

OR

- Q2) a)** Prepare part programming of following component [9]



All dimensions in mm.

- b) Discuss the several word functions in Numerical Control systems. Discuss the advantages of DNC over NC/CNC [9]
- Q3) a)** Explain with block diagram the main elements of CIM system. [9]
- b) Explain about computer aided process planning (CAPP) [8]

OR

**P.T.O.**

- Q4)** a) What is computer aided inspection (CAI) and how can we control quality with the help of CAI? [9]  
b) What is a material requirement planning? Explain the various inputs to the MRP system? [8]

- Q5)** a) What are the different types of material handling equipment? [9]  
b) What are the components of the AS/RS system? [9]

OR

- Q6)** a) Explain the working principle of a robot with the help of a neat sketch. Also describe the components. [9]  
b) What are different types of AGV Explain with their principle of working. [9]
- Q7)** a) What are the different types of tool strategies? Explain Each. [9]  
b) Explain the term Tool Monitoring and fault Detection. [8]

OR

- Q8)** a) What do you know about tool Management? Write note on tool Room Service and Tool Allocation. [9]  
b) Draw and explain block diagram offered detection in vibration. [8]

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