

[6180]-273

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

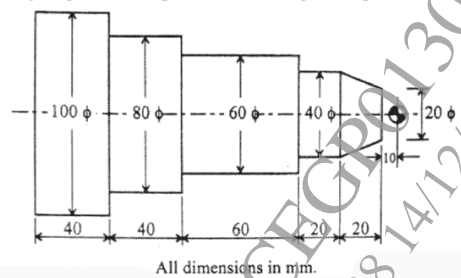
Time : 2½ Hours]

[Max. Marks : 70]

Instructions to the candidates:

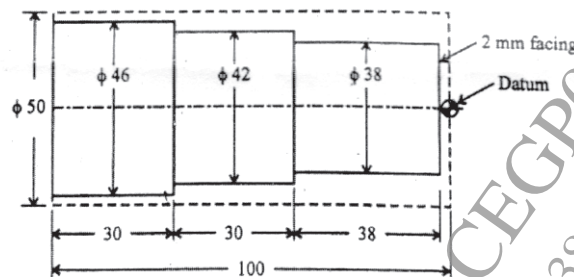
- 1) Figures to the right indicate full marks.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume suitable data if necessary.
- 4) Use of Logarithmic table, slide rule or Electronic pocket calculator is allowed.
- 5) Answer Q.1 or Q.2, Q3 or Q4, Q5 or Q6, Q7 or Q8.

- Q1)** a) What are the basic components of the NC system and explain the function of each component? [9]
- b) Prepare part programming of following component. [9]



OR

- Q2)** a) Describe various G and M codes used in CNC machines. [9]
- b) Prepare part programming of following component. [9]



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- Q3)** a) Explain with block diagram the main elements of CIM system. [9]  
b) Explain the concept of ERP? [8]

OR

- Q4)** a) What is a material requirement planning? Explain the various inputs to the MRP system? [9]  
b) Explain about computer aided process planning (CAPP). [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 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]

OR

- Q8)** a) Explain the term Tool Monitoring and fault detection. [9]  
b) What are the different types of tool strategies? Explain each. [8]

