SIXTH SEMESTER [B.TECH] MAY-JUNE 2017

Paper Code: ETMT-308 **Subject: Computer Integrated Manufacturing**

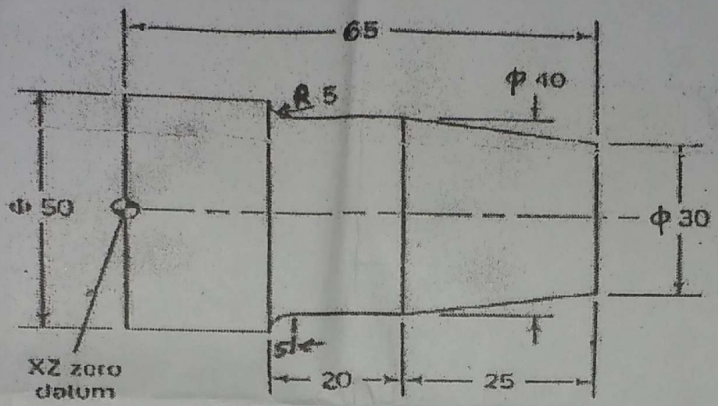
Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each Unit.

Q1 (a) Why do CNC machines require design changes over their manual counterparts? (5)
(b) What is CIM? For any manufactured product, list six important data. (5)
(c) Discuss the input and output of a MRP system. (5)
(d) Differentiate between the variant and generative methods of CAPP. (5)
(e) Write short notes on agile manufacturing system. (5)

Unit-I

Q2 (a) Explain stick-slip motion and how they are reduced in CNC machine? (5)
(b) Write a NC program to machine the aluminum part shown below. A 50 mm diameter blank, 65 mm long is to be used. (7.5)



All dimensions are in mm

Q3 (a) Explain the special construction features of a CNC machine and justify its requirements. (5)
(b) Differentiate between canned cycle and subroutines in CNC programming. (7.5)

Unit-II

Q4 (a) What are the reasons for implementing CAD/CAM applications in design and manufacturing process? (5)
(b) Discuss the working of automatic tool changer (ATC) and preset tool in a CNC machine. (7.5)

Q5 (a) Sketch any two work holding devices used in CNC machine and discuss its characteristics features. (5)
(b) Write short note on decision support system and distributed computing. (7.5)

Unit-III

Q6 (a) Discuss how the Japanese word for card (Kanban) has application in the implementation of JIT. (5)
(b) Differentiate between material requirement planning (MRP) and manufacturing resource planning (MRP-II). (7.5)

Q7 (a) Discuss the advantages and disadvantages of an ERP. (5)
(b) Describe just-in-time production system. (7.5)

Unit-IV

Q8 (a) Define industrial robot and sketch four common robot configurations. (5)
(b) Discuss the advantages and disadvantages of computer aided process planning (CAPP) over the conventional method of process planning. (7.5)

Q9 (a) Discuss the methods of features classification and recognition in computer aided process planning (CAPP). (5)
(b) Write short notes on lean manufacturing system and reconfigurable manufacturing system. (7.5)

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