

# C.U.SHAH UNIVERSITY

## Summer Examination-2017

**Subject Name: Computer Aided Manufacturing**

**Subject Code: 4TE07CAM1**

**Branch: B.Tech (Mechanical)**

**Semester: 7**

**Date: 21/03/2017**

**Time: 02:30 To 05:30**

**Marks: 70**

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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
**Q-1**

**Attempt the following questions:**

**(14)**

- (a) The machine tool in which the system of continuous path numerical control is applied is the
  - (a) Drilling Machine
  - (b) Grinding Machine
  - (c) Milling Machine
  - (d) Shaping Machine
- (b) The vertical movement of the worktable on a conventional milling machine is represented in the Cartesian coordinate system as a movement parallel to
  - (a) The X- axis
  - (b) The Y- axis
  - (c) The O- axis
  - (d) The Z- axis
- (c) Numerical Control can be applied to
  - (a) Lathe
  - (b) Drilling Machine
  - (c) Milling Machine
  - (d) All of these
- (d) APT language is used in
  - (a) Large automation systems
  - (b) NC Machines
  - (c) Design and Drafting Systems
  - (d) Programmable Controllers
- (e) Direct numerical control (DNC) means
  - (a) Using several computers to control one large CNC machine.
  - (b) Using one computer to control several CNC machines
  - (c) Elimination of computers from the manufacturing process altogether
  - (d) Complete elimination of a need for a machine operator.
- (f) Types of part programming formats used in NC Machines
  - (a) Fixed Block Format
  - (b) Tab Sequential Format
  - (c) Word Address Format
  - (d) All of these
- (g) For cutter radius compensation to the right side, following G code is used:
  - (a) G40
  - (b) G41
  - (c) G42
  - (d) All of these
- (h) Variant type CAPP system is also called as:
  - (a) Retrieval type process planning
  - (b) Traditional process planning system
  - (c) Generative process planning system
  - (d) All of these
- (i) In Optiz classification system the basic code consist of \_\_\_\_\_ digits.
  - (a) 09
  - (b) 11
  - (c) 12
  - (d) 13



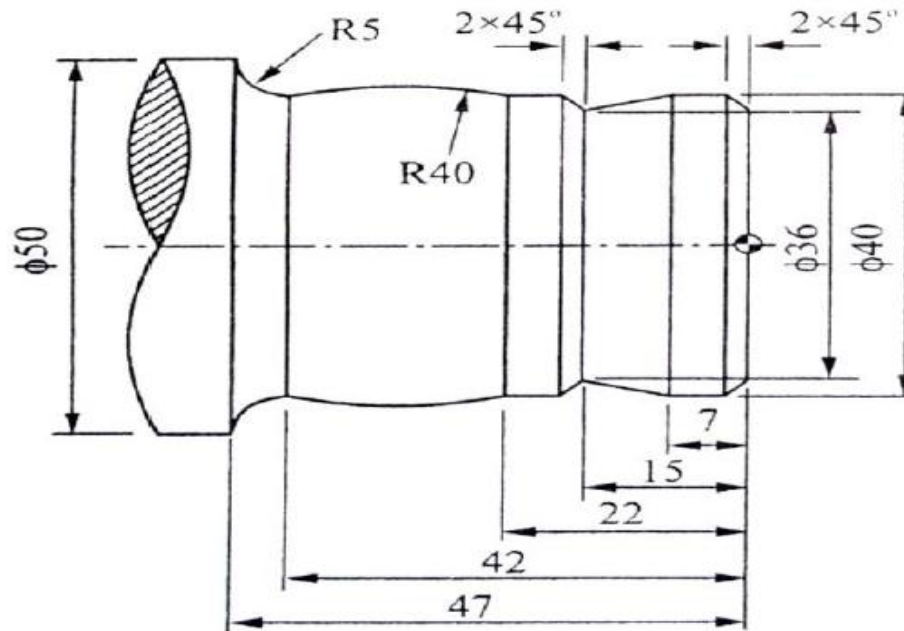
- (j) Photogrammetry is a \_\_\_\_\_ type of inspection method in Quality Control.
- (a) Optical Non contact (b) Non optical Non contact  
(c) Contact (d) None of these
- (k) MRP input requires:
- (a) MPS (b) BOM  
(c) Inventory file (d) All of these
- (l) Computer program designed and developed for helping the user to solve the decision making problems is called:
- (a) Management (b) Knowledge base  
(c) Expert system (d) knowledge Acquisition
- (m) Batch production in industries also called as
- (a) Continuous Process Industries (b) Mass Production Industries  
(c) Discrete Manufacturing (d) None of these
- (n) In ladder logic diagrams the symbol  is used for:
- (a) Normally open contact (b) Counter  
(c) Output Loads (d) Normally closed contacts

Attempt any four questions from Q-2 to Q-8

Q-2

Attempt all questions

- (a) Explain various stages involved with NC manufacturing. How do they differ from conventional manufacturing? (07)
- (b) Write a manual part program for finishing a forged component as shown in Figure below. Assume appropriate values of cutting parameters. Assume 1 mm material is to be removed radially from external diameter. (07)



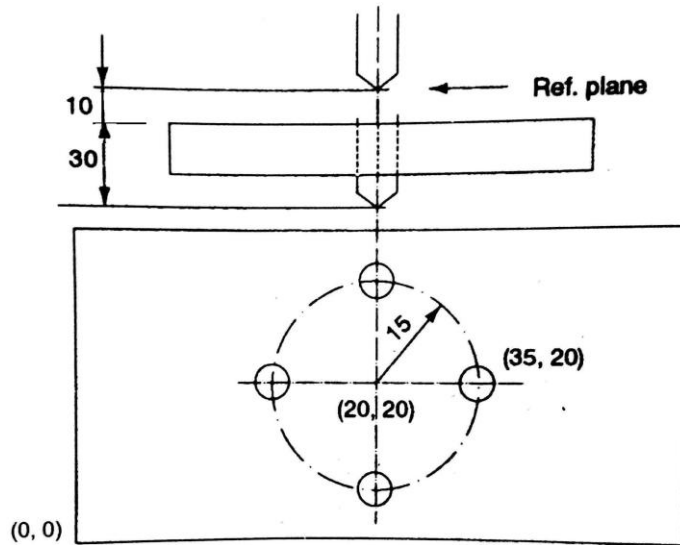
All Dimensions are in mm.

Q-3

Attempt all questions

- (a) Why feedback necessary in machine tools? Discuss the methods used for position and velocity feedback in CNC machines. (07)
- (b) Write a subroutine for drilling a series of holes for the work piece shown in figure. (07)





All Dimensions are in mm.

- Q-4 Attempt all questions**
- (a) Explain advantages of CAPP over conventional process planning. (03)
  - (b) What is Production Flow Analysis in GT? Explain with suitable example. (04)
  - (c) Write short note on Computerized machinability data system. (07)
- Q-5 Attempt all questions**
- (a) Explain data logging systems and data acquisition systems. (07)
  - (b) Write a note on: Role of Computer in Quality control. (07)
- Q-6 Attempt all questions**
- (a) Explain different types of FMS layouts with neat diagram. (07)
  - (b) Describe how World Wide Web can help to shorten the product development cycle time. (07)
- Q-7 Attempt all questions**
- (a) Define PLC. Explain the basic components of PLC with schematic diagram. (07)
  - (b) What role can expert systems play in a CIM environment? Explain. (07)
- Q-8 Attempt all questions**
- (a) Discuss the salient features of point to point, straight line and contouring CNC systems. (07)
  - (b) Describe with neat sketch AS/RS system used in FMS. (07)

