

Enrollment No: _____

Exam Seat No: _____

C. U. SHAH UNIVERSITY

Summer Examination-2020

Subject Name: Computer Aided Manufacturing

Subject Code: 4TE07CAM1

Branch: B.Tech (Mechanical)

Semester : 7

Date : 25/02/2020

Time : 10:30 To 01:30

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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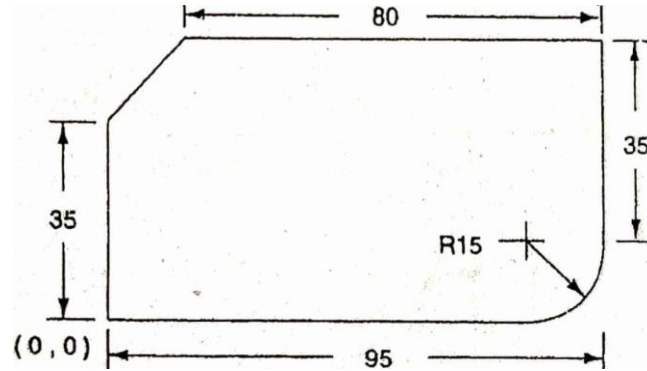
- Q-1** **Attempt the following questions:** **(14)**
- (a) Define Parity Checking.
 - (b) Classify NC/CNC system based on feedback control.
 - (c) What is cutter radius compensation?
 - (d) Explain use of codes G04 and G94 in part programming..
 - (e) Explain use of codes M03 and M08 in part programming.
 - (f) Define Adaptive control system.
 - (g) What is the meaning of form code in Optiz part classification system?
 - (h) Give basic difference between Variant and generative approach of CAPP.
 - (i) Define MRP.
 - (j) Enlist optical non-contact inspection techniques.
 - (k) What are the three capabilities that a manufacturing system must possess in order to be flexible?
 - (l) What is CORBA?
 - (m) What is the role of Expert system in CIM?
 - (n) Specify any two symbols for common logic and sequence elements used in ladder logic diagram.

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

- Q-2** **Attempt all questions**
- (a) Discuss how sliding friction is converted into rolling friction in CNC machines? **(07)**
 - (b) Prepare the part programme to cut threads on 60 mm length having 40 mm diameter bar with pitch= 0.75 mm and depth of thread = 0.46 mm. Depth of cut is 0.2 mm per pass, except in last pass where depth of cut is 0.06 mm. The starting tool position is X= 0 and Z= 10. **(07)**
- Q-3** **Attempt all questions**
- (a) With the help of suitable figure explain the following with reference to CNC machines. (i) Absolute and incremental dimensioning and (ii) Axis identification for lathe and milling machine **(07)**
 - (b) Prepare the part programme for the component shown in figure with cutter radius **(07)**



compensation and direction of cut programmed in anticlockwise direction. $Z=00$ is at the top surface of the work piece. Feed = 200 mm/minute, Speed= 1000 rpm, Depth of cut= 10 mm.



All Dimensions are in mm.

- Q-4 Attempt all questions**
- (a) Explain Retrieval type process planning systems. (07)
- (b) Discuss in brief the three phases of shop floor control. (07)
- Q-5 Attempt all questions**
- (a) What is a part family? Discuss the three methods for solving the problem of grouping parts into part families. (07)
- (b) Write a short note on Role of Computer in Quality control. (07)
- Q-6 Attempt all questions**
- (a) Define PLC. Explain the basic components of PLC with schematic diagram. (07)
- (b) Explain about AGV system with their applications. (07)
- Q-7 Attempt all questions**
- (a) Discuss how internet is an enabling tool for collaborative product development. (07)
- (b) Discuss the concept of CIM wheel and explain the importance of it. (07)
- Q-8 Attempt all questions**
- (a) Define: Machine Zero, Work Zero, Zero Shift, Do loops, Subroutine, Canned Cycles and APT in context of part programming. (07)
- (b) Explain different types of FMS layouts with neat diagram. (07)

