Code: 9D04204

M.Tech II Semester Supplementary Examinations January/February 2017

CNC TECHNOLOGY & PROGRAMMING

(CAD/CAM)

Time: 3 hours Max. Marks: 60

Answer any FIVE questions

All questions carry equal marks

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1 (a) Explain various elements of machine control unit.
(b) What are the important features of machining center used for higher production?

2 (a) What are the requirements of axes feed drives in CNC machine tools?
(b) Explain the arrangement of recirculation of balls in ball screw and state their advantages.

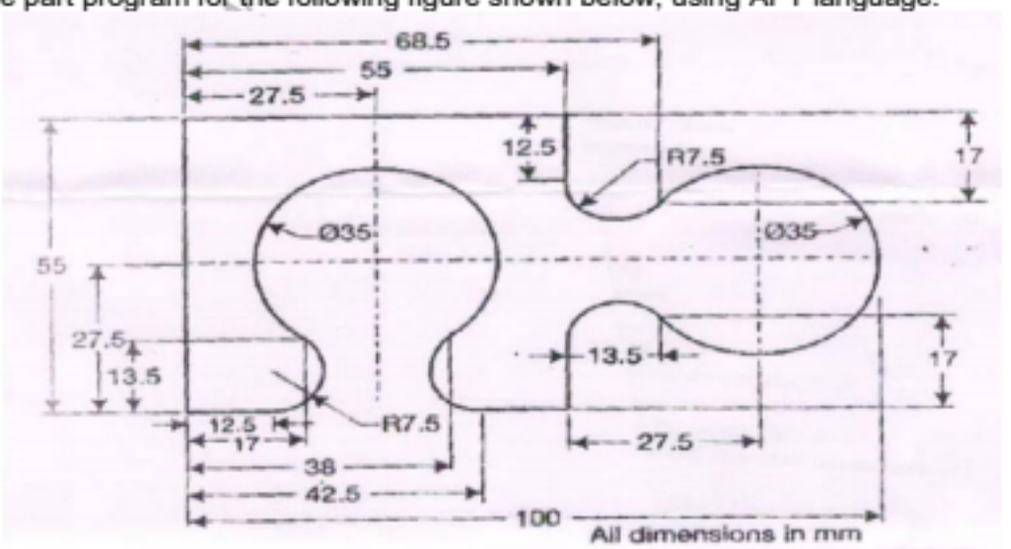
3 (a) What are the technical considerations that influence the automatic tool changer (ATC)?
(b) List the different materials used in spindles and why AC spindles are selected in CNC machine tool.

4 (a) Explain the digital absolute encoder used for measurement of position and speed of rotary system.
(b) Write short notes on Moire Fringes.

5 Write a short note on:
(a) Syncro-resolvers.
(b) Laser interferometer.

6 The worktable of a positioning system is driven by a lead screw whose pitch = 6.0 mm. The lead screw is connected to the output shaft of a stepping motor through a gear box whose ratio is 5:1 (5 turns of the motor to one turn of the lead screw). The steppins motor has 48 step angles. The table must move a distance of 250 mm from its present position at a linear velocity = 500 mm/min. Determine: (i) How many pulse are required to move the table the specified distance.
(ii) The required motor speed and pulse rate to achieve the desired table velocity.

7 Develop the part program for the following figure shown below, using APT language.



8 (a) Discuss any four factors influencing selection of CNC machines.
(b) What do you understand about the maintenance features of CNC systems and state the objectives of preventive maintenance?

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