22448

12425

03 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) List four applications of LBM.

b) Classify various types of CNC machines.

c) State two characteristics of abrasive jet machining.

d) State the need of surface finishing methods.

e) Define G codes and M codes.

f) List various elements of SPM.

g) State the meaning of G01 and M30.

2. Attempt any THREE of the following: **12**

a) Differentiate between ECM and EDM.

b) Explain co-ordinate systems in CNC.

c) Describe the tool presetting procedure in CNC machines.

d) Explain the need and working of ATC device in CNC machines.

P.T.O.

Marks

3. Attempt any THREE of the following: **12**

a) Describe the need and working of wire out discharge machining.

b) Explain the principle of laser beam machining and write two advantages.

c) Differentiate between open loop and closed loop control systems used in CNC.

d) Explain the need and characteristics of indexable inserts in CNC tooling.

4. Attempt any THREE of the following: **12**

a) Explain point to point and continuous path motion control system.

b) Explain Electro Discharge Machining with neat sketch.

c) Explain the meaning of each word in programming format for CNC programming.

d) Explain the buffing process with merits and demerits.

e) Differentiate between polishing and burnishing process.

5. Attempt any TWO of the following: **12**

a) Write a part program for a job as shown in Fig. No. 1. Take only Finish cut. Spindle speed is 900 rpm and feed rate is 120 mm/rev. Assume suitable machining data if required.

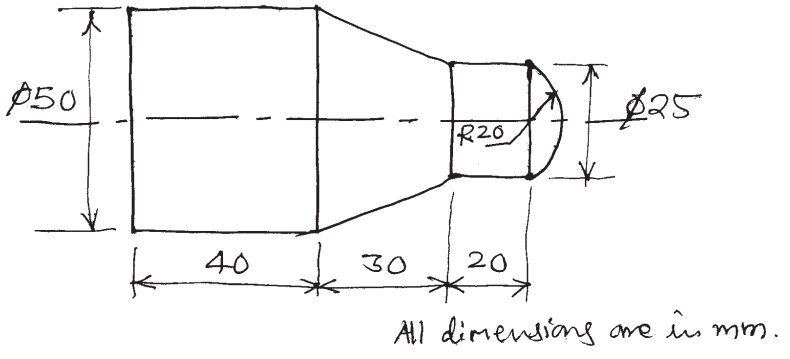

Fig. No. 1

b) List out various types of tool magazine explain any one with sketch.

c) Describe bar feeding mechanism with neak sketch for capstan lathe.

Marks

6. Attempt any TWO of the following: **12**

a) Prepare a part program for machining component as shown in Fig. No. 2. Use following data : cutting speed : 1200 rpm feed : 40 mm/min, thickness of component is 3 mm. Tool reference position is 4 mm above the surface of the work piece. Assume suitable data if required. Neglect cutter radius compensation.

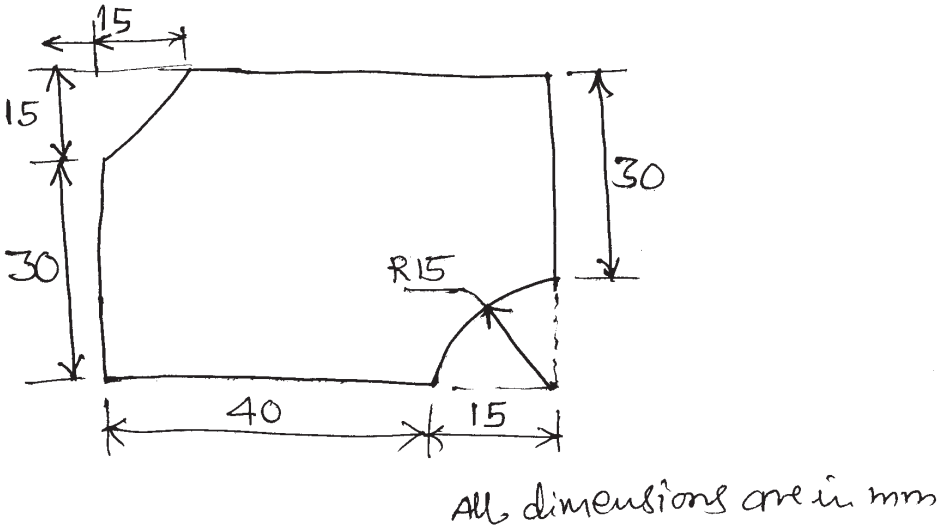

Fig. No. 2

b) Explain lapping process with neat sketch. Give two specific applications.

c) Compare capstan and turret lathes with following points:

i) Construction

ii) Working

iii) Applications

iv) Speed and size

v) Accuracy

vi) Accessories used