22563

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) 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) Give two applications of EDM

b) Name any four types of milling cutters.

c) Write any two advantages of Gear hobbing.

d) List the various elements of CNC machine.

e) State the meaning of G02 and M02 in CNC programming.

f) What is tool length compensation in CNC programming.

g) What are the basic types of automation systems.

Marks

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

a) Explain working of Laser beam machining with neat sketch.

b) State different milling operations and draw a neat sketch of any one of it.

c) Differentiate between subroutine and canned cycle.
(Any 4 differences)

d) Explain the DO loops programming format with simple example.

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

a) Differentiate between gear hobbing process and gear shaping process.

b) Explain work holding devices used in CNC machines.

c) Justify the need of virtual CNC simulators.

d) Give detail classification of Robots.

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

a) Explain with neat sketch Rack cutter generating process.

b) Compare CNC machine with DNC machine.

c) Prepare a part programming for the following component, assume suitable speed, feed and tool.

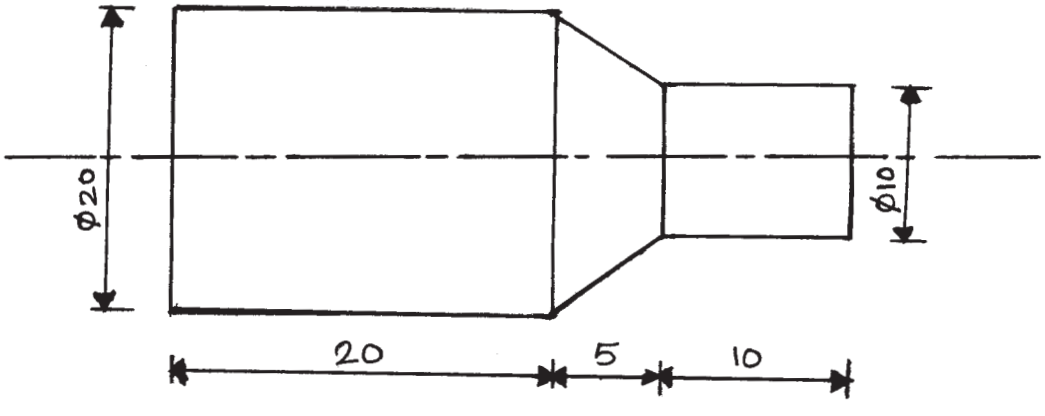

Fig. No. 1

Marks

d) Develop a part programme for CNC milling for the part shown in Fig. 2.

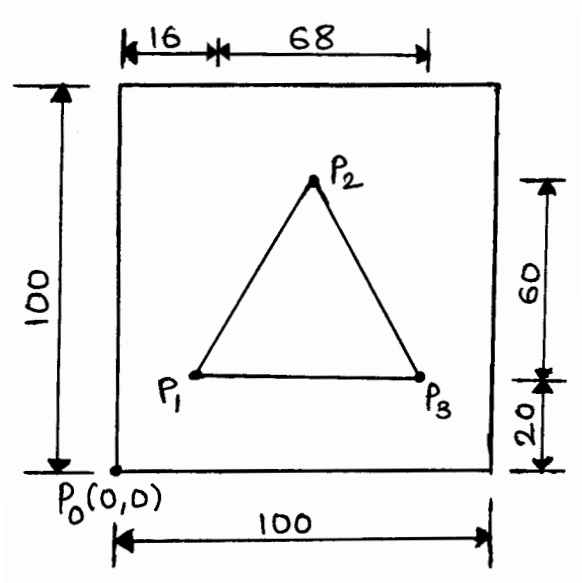

Fig. No. 2

Take spindle speed = 800 rpm

feed = 80 mm / min

Depth of slot = 5 mm

Neglect cutter compensation

e) What is programmable automation? State it's features.

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

a) Explain plasma arc machining with neat sketch. State its process parameters.

b) Apply compound indexing method for indexing 51 divisions.

c) How linear and rotary axes are identified in CNC machines. Describe it with neat sketch.

Marks

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

a) Explain process parameters considered in EDM. How these parameters affect on EDM process.

b) Describe internal mechanism of universal dividing head with neat and labelled sketch.

c) Explain any one gear shaping process with neat sketch. Write advantage and disadvantages of it.
