17527

21819

3 Hours / 100 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any THREE of the following:** **12**

(i) Draw a neat sketch of wire cut EDM. Explain the working principle.

(ii) State and explain any four process parameters of Laser beam machining.

(iii) Differentiate between open loop and closed loop control system.

(iv) State the advantages and limitations of broaching machine.

b) **Attempt any ONE of the following:** **6**

(i) Draw a set up for abrasive jet machining. Explain the working principle and its process parameters.

(ii) Explain with sketch axis identifications for CNC lathe and VMC.

Marks

2. Attempt any FOUR of the following: **16**

a) State any four reasons for the need of non-traditional machining processes.

b) Define a part programme. Give a word address format for writing an instruction along with meaning of each term.

c) Explain with sketch up milling and down milling.

d) State and explain various indexing methods.

e) State difference between dielectric fluid and electrolyte.

3. Attempt any TWO of the following: **16**

a) Explain working of plasma arc machining. State advantages, disadvantages and applications.

b) Write a part programme for milling a given component as shown in Fig. No. 1. The end mill cutter diameter is 10 mm. Use feed rate as 100 mm/min and spindle speed as 1000 rpm. Assume suitable data if necessary.

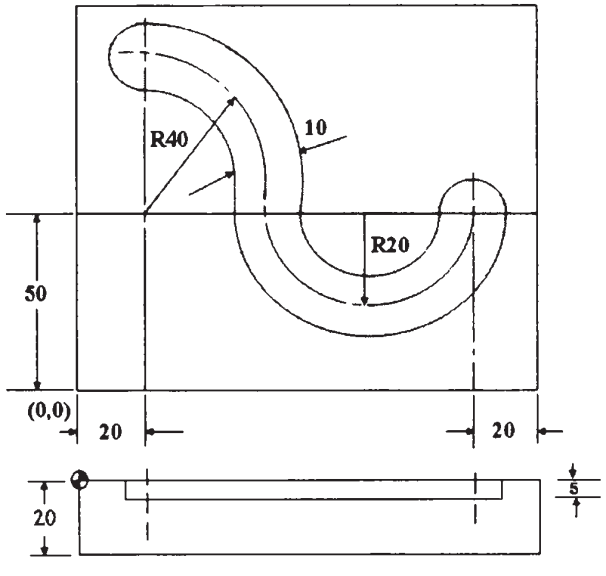

Fig. No. 1

c) (i) Differentiate between pull broach and push broach.

(ii) Draw a nomenclature of a plain milling cutter. Label all the elements.

Marks

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

(i) Explain with sketch gear hobbing process.

(ii) What is gear shaving? Explain with sketch.

(iii) Explain wheel dressing and truing.

(iv) What information is collected in a maintenance record while carrying out maintenance of an equipment.

b) **Attempt any ONE of the following:** **6**

(i) Draw a labeled sketch of column and knee type milling machine. State function of any four elements.

(ii) How well you specify a grinding wheel? Explain with a suitable example.

5. **Attempt any FOUR of the following:** **16**

a) Classify boring machines. State different types of tools used.

b) State advantages and applications of turret lathe.

c) Explain gang milling and straddle milling.

d) What is centre less grading? Explain any one with neat sketch.

e) Explain the working principle of honing. State its applications.

f) What are different types of maintenance? Give suitable example of each.

6. **Attempt any FOUR of the following:** **16**

a) Explain the concept of dry run and jog mode.

b) Explain how a capstan lathe is different from a simple lathe.

c) Sketch and label basic parts of a horizontal broaching machine.

d) Enlist grinding wheel safety precautions.

e) Explain repair cycle analysis with a suitable example.