17527

21718

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

i) State the need and importance of non-traditional machining processes. (Two points each)

ii) Explain the working of wire-cut EDM process with neat sketch.

iii) State the meaning of G03, G40, M03, M06.

iv) Write down the classification of boring machine.

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

i) Describe the working of LBM with neat sketch. State any two advantages of LBM.

ii) State the importance of dry run in CNC machine; Enlist the safety procedures to be followed while using CNC machines.

Marks

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

a) State any four essential requirements of dielectric fluid used in EDM.

b) Explain closed loop control system with neat sketch.

c) Explain the construction of planomiller with neat sketch.

d) Write down the detailed classification of milling machine.

e) State the objectives and need of maintenance (2 points each)

f) Compare traditional and non-traditional machining processes. (Four points each)

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

a) Write a part program for job as shown in Fig. No. 1. Take only finish cut. Use, Spindle speed = 1500 rpm and feed rate = 0.1 mm/rev. Assume suitable data if necessary.

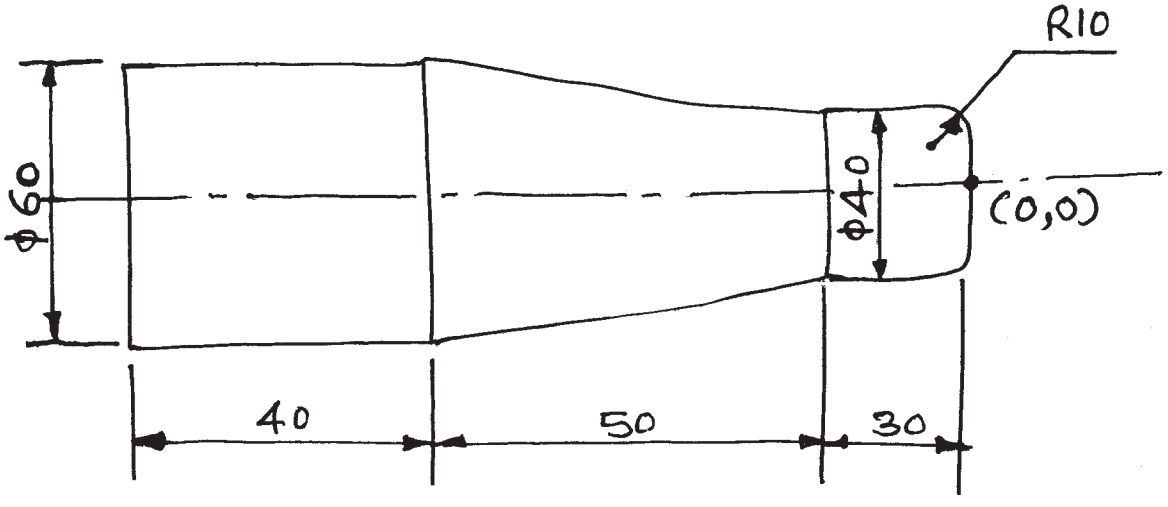

Fig. No. 1

b) Explain the working of PAM with neat labelled sketch. State its any two applications.

c) What is the function of dividing head? Sketch and explain internal mechanism of universal dividing head.

Marks

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

i) Differentiate between up-milling and down milling. (Four points each)

ii) Explain gear hobbing process with neat sketch.

iii) Explain honing process with neat sketch.

iv) What is repair complexity? State its use in maintenance of machine tools. (Any two)

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

i) Explain the stepwise process of manufacturing hexagonal shape on milling machine.

ii) Explain, how grinding wheels are specified.

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

a) Explain repair cycle analysis. State its uses in maintenance of machine. (Any two)

b) What is burnishing? State its advantages.

c) What is meant by grinding wheel dressing? Why wheel dressing is necessary?

d) Explain with neat sketch gear grinding using form wheel.

e) Differentiate between capstan and turret lathe. (Four points each)

f) Sketch any two types of boring tools.

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

a) Define feed/tooth and feed/revolution in milling operations.

b) Draw sketch showing different elements of broach and state the function of any two elements.

c) Compare preventive maintenance with break-down maintenance. (Four points)

d) Enlist the advantages and limitations of broaching. (Two points each)

e) What is cutter tool compensation? Why it is required in CNC machine part programming.

f) State any four criteria of selecting the grinding wheel for, any specific application.