

- 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.

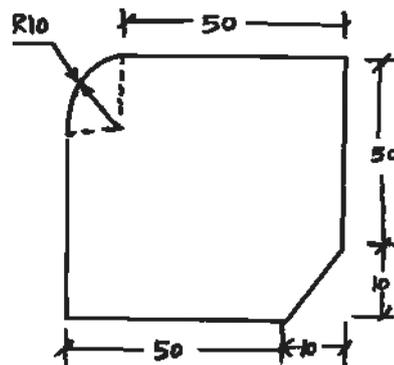
1. (a) Attempt any **THREE** of the following: [12]
- (i) Explain the principle of EDM with neat sketch. Give two applications of EDM.
  - (ii) Classify indexing methods in gear cutting.
  - (iii) State four needs of non-traditional machining processes.
  - (iv) How are nontraditional machining processes classified? State its importance.

- (b) Attempt any **ONE** of the following: [6]
- (i) Draw neat labelled sketch of centerless grinding. Explain its working.
  - (ii) Explain the closed loop control system with block diagram and state the functions of each element.

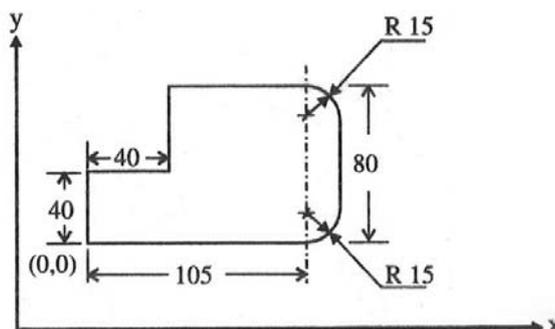
2. Attempt any **FOUR** of the following : [16]
- (a) State meaning of absolute and incremental coordinate system.
  - (b) Explain the use of following codes in CNC part programming. G80, G91, M03, M98
  - (c) List applications of AJM & WJM process.
  - (d) Differentiate between planer and planomiller.
  - (e) Explain the concept of repair cycle analysis and repair complexity.

3. Attempt any **TWO** of the following : [16]
- (a) Explain the working principle of PAM with a neat sketch. Disadvantages and applications of PAM.

- (b) Prepare a part program for machining component as shown in Figure. Use following data: cutting speed: 1200 rpm, feed: 60mm/min, thickness of component 3 mm, Tool reference position is 4 mm above the surface of the workpiece. Assume suitable data if any. Neglect cutter radius compensation.



- (c) Write CNC programme for milling a component as shown in figure with end mill of 20 mm diameter, thickness of plate 10 mm, feed 90 mm/min, spindle rpm 450. Assume suitable data if necessary.



4. (a) Attempt the **THREE** of the following: [12]
- (i) Differentiate between breakdown maintenance and preventive maintenance.
  - (ii) Explain the following terms in CNC machine programming:
    - (1) Dry run
    - (2) Jog mode
    - (3) Block by Block execution
  - (iii) Sketch a planomiller with labels.
  - (iv) Explain the dressing and truing of grinding wheel with neat sketches.
- (b) Attempt any **ONE** of the following: [6]
- (i) Differentiate between end milling and facing operation.
  - (ii) Compare capstan and turret lathe.
5. Attempt any **FOUR** of the following: [16]
- (a) Compare the pull broach and push broach.
  - (b) State how maintenance of gears and machine belts are done.
  - (c) What is a dividing head in gear cutting process? With a neat sketch explain the construction of any one dividing head.
  - (d) Differentiate between honing and lapping.
  - (e) Give the advantages and disadvantages of gear hobbing process.
  - (f) Explain gang milling.
6. Attempt any **FOUR** of the following: [16]
- (a) Define boring, State types.
  - (b) Explain buffing operation. State its advantages.
  - (c) Give classification of broaching machines.
  - (d) What is repair complexity? How is it useful to the maintenance team?
  - (e) Explain slot milling.
  - (f) Define part program. Explain the term preparatory functions and miscellaneous functions in the context of CNC programming.



**T Y Diploma Sem-V: Paper Discussion Schedule**

Branches	Date	Day	Timing	Centres
Mechanical Group	8 Nov. 2018	Thursday	9 a.m. to 11 a.m.	Dadar, Kalyan
	8 Nov. 2018	Thursday	12 noon to 2 p.m.	Thane