Instruction: (1) All Questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.
(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

1. Attempt any FIVE of the following: [10]
   (a) State the need of non-traditional machining processes. (Two points each)
   (b) Draw wire-cut EDM process with neat sketch.
   (c) State the meaning of G03, M03.
   (d) Write down the classification of boring machine.
   (e) Give two applications of EDM.
   (f) Differentiate between absolute and incremental coordinate system used in CNC part programming with an example.
   (g) How are nontraditional machining processes classified?

2. Attempt any THREE of the following: [12]
   (a) Explain LBM with neat sketch.
   (b) Differentiate between gear hobbing process and gear shaping process.
   (c) Explain closed loop control system with neat sketch.
   (d) State the objectives and need of maintenance (2 points each)

3. Attempt any THREE of the following: [12]
   (a) Explain the working of PAM with net labelled sketch. State its any two applications.
   (b) What is the function of dividing head? Sketch and explain internal mechanism of universal dividing head.
   (c) Explain the cutting parameters in milling machine. How is the machining time calculated on a milling machines.
   (d) Explain the working principle of PAM with a neat sketch. Disadvantages and applications of PAM.

4. Attempt any THREE of the following: [12]
   (a) Write part program for a job as shown in figure. Take only finish cut. Spindle speed is 1200 rpm and feed rate is 150 mm/rev. Assume suitable machining data, if necessary.

   (b) Explain the dressing and trueing of grinding wheel with neat sketches.
   (c) Differentiate between breakdown maintenance and preventive maintenance.
   (d) Explain honing process with neat sketch.
   (e) Differentiate between up-milling and down milling. (Four points each)
5. Attempt any TWO of the following: [12]
   (a) Draw sketch showing different elements of broach and state the function of any two
       elements.
   (b) State any four criteria of selecting the grinding wheel for any specific application.
   (c) Differentiate between capstan and turret lathe. (Four points each)

6. Attempt any TWO of the following: [12]
   (a) Define part program. Explain the term preparatory functions and miscellaneous
       functions in the context of CNC programming.
   (b) Give classification of broaching machines.
   (c) Explain the maintenance manual.

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

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<td>Mechanical</td>
<td>6 Nov. 2019</td>
<td>Wednesday</td>
<td>8 a.m. to 9 a.m.</td>
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<td>Group</td>
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<td>Wednesday</td>
<td>10 a.m. to 11 a.m.</td>
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