

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-III(NEW) EXAMINATION – SUMMER 2023****Subject Code:2131903****Date:26-07-2023****Subject Name: Manufacturing Process-I****Time: 02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Enlist the operations performed on Lathe machine. **03**  
 (b) Give the comparison between a turret lathe and capstan lathe **04**  
 (c) State the desirable properties of cutting fluids. Derive the expressions for shear angle and chip thickness ratio. **07**
- Q.2** (a) State the functions of live centre and dead centre in a lathe. **03**  
 (b) Differentiate between orthogonal and oblique cutting. **04**  
 (c) Give detailed classification of machine tools with their application **07**
- OR**
- (c) Explain why a lathe bed is made from cast iron. Explain the lathe bed with a neat sketch. **07**
- Q.3** (a) Define the following terms used in lathe operations: **03**  
 (1) Cutting speed (2) Depth of cut (3) Machining time  
 (b) Explain knurling operation on lathe machine with positions of work piece and tool. **04**  
 (c) Draw a neat sketch of single point cutting tool & explain important tool signature **07**
- OR**
- Q.3** (a) What is boring operation? Sketch a boring tool. **03**  
 (b) Describe the difference between up milling and down milling. **04**  
 (c) Classified metal cutting sawing machine and explain any two in details. **07**
- Q.4** (a) Classify milling machines. **03**  
 (b) Differentiate three jaw and four jaw chuck **04**  
 (c) Write names of various types of drilling machines & explain any one with neat sketch **07**
- OR**
- Q.4** (a) Explain quick return mechanism used in shaper machine with neat sketch **03**  
 (b) Draw a neat sketch of a knee and arbor type milling machine and label its parts. **04**  
 (c) Draw a neat sketch of a planer and label its various parts. **07**
- Q.5** (a) What is mandrel? Discuss use of mandrel in manufacturing with suitable example. **03**  
 (b) Compare shaper and planer. **04**  
 (c) Explain the specifications of a radial drilling machine with a neat sketch. **07**  
 Explain the difference between drilling and boring.
- OR**
- Q.5** (a) What is indexing? Why is it required? **03**  
 (b) Explain surface grinding operation with neat diagram **04**  
 (c) Explain types of bonding process of abrasives with grinding wheel (any three) **07**

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