

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER- III(NEW) EXAMINATION – WINTER 2022****Subject Code:2131903****Date:22-02-2023****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.

	MARKS
Q.1 (a) Define the following terms used in lathe operations: (1) Cutting speed (2) Depth of cut (3) Feed	03
(b) List the methods of taper turning on lathe machine. Explain any one method of taper turning on lathe machine.	04
(c) Write a short note on types of motions in machine tools.	07
Q.2 (a) Explain quick return mechanism used in shaper machine with neat sketch.	03
(b) What is mandrel? Discuss use of mandrel in manufacturing with suitable example.	04
(c) State the advantages of all geared headstock as against a belt driven headstock. Explain the function of a half nut during lathe operation with a neat sketch.	07
OR	
(c) Derive expression for shear angle & chip thickness ratio	07
Q.3 (a) Give the comparison between a turret lathe and capstan lathe.	03
(b) Write down difference between shaper and planer Machine.	04
(c) Describe a knee and arbor type milling machine with neat sketch.	07
OR	
Q.3 (a) Draw a neat sketch of a plain milling cutter and label its various elements.	03
(b) Explain “Pull broaching” and “Push Broaching”.	04
(c) Explain Radial drilling machine with neat sketch.	07
Q.4 (a) Classify milling machines.	03
(b) Explain the difference between drilling and boring.	04
(c) Explain any six operations performed on drilling machine with neat sketch.	07
OR	
Q.4 (a) What is indexing? Why is it required?	03
(b) Explain centreless internal grinding operation with neat diagram.	04
(c) With the help of neat sketch, explain ‘Hydraulic’ shaper mechanism.	07
Q.5 (a) Differentiate between up milling Process and down milling Process.	03
(b) Write a short note on “Horizontal Boring Machine”.	04
(c) Explain any four types of milling operations using neat sketches.	07

OR

- Q.5** (a) Explain truing and dressing of grinding wheels. **03**
(b) Explain gang milling and straddle milling operations with neat sketches. **04**
(c) Explain the specifications of a grinding wheel. Explain why a soft wheel is suggested to grind a hard material. **07**
