

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - IV EXAMINATION - WINTER 2025

Subject Code: 3141908

Date: 24-11-2025

Subject Name: Manufacturing Processes

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) Describe primary and secondary motions used in the machine tools.	03
(b) Define Machine tool along with its classification.	04
(c) Illustrate single point cutting tool geometry and its signature with sketch.	07
Q.2 (a) Why is the Lathe machine called the 'Mother of Machine Tools'?	03
(b) Explain any eight operations carried out on lathe machine.	04
(c) List the methods of taper turning on a lathe machine. Describe a method suitable for long jobs with a neat sketch.	07
OR	
(c) Name the accessories commonly used to enhance lathe operations. Explain the different types of mandrels.	07
Q.3 (a) List the Common operations that can be carried out on Drilling machine and explain any three with neat sketches.	03
(b) Write a short note on radial drilling machine.	04
(c) Illustrate nomenclature of drill bit with a neat sketch	07
OR	
(a) Give any four field applications of drilling machine.	03
(b) What are the different tool holding devices used in a drilling machine? Describe any one with a neat sketch.	04
(c) Describe Horizontal boring machine with a neat sketch.	07
Q.4 (a) List out the alignment test required for milling machine.	03
(b) Demonstrate the different types of milling cutters with line diagrams.	04
(c) Describe Knee and column Vertical Milling machine with a neat sketch.	07
OR	
(a) Classify Milling machine as per application and structure.	03

- (b) Define indexing. Explain direct indexing with an example. 04
- (c) List out various milling machine operations and explain any six operations. 07
- Q.5** (a) Classify the Planner, Shaper, and Slotter Machine Tools. 03
- (b) Describe the coding of grinding wheel as per ISI. 04
- (c) Explain the crank and slotted link quick return mechanisms used in a shaper machine. 07

OR

- (a) Define dressing of a grinding wheel. Which operation is performed to alter the shape of a grinding wheel? 03
- (b) Explain centerless grinders along with their advantages and limitations. 04
- (c) Describe grinding wheel characteristics and wheel selection procedure in details. 07

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2024

Subject Code: 3141908

Date: 27-11-2024

Subject Name: Manufacturing Processes

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) Differentiate primary motion and secondary motion in the centre lathe.	03
	(b) What are the basic requirements of the machining processes?	04
	(c) Draw single point cutting tool geometry and explain tool signature as per ASA.	07
Q.2	(a) Differentiate between Orthogonal and Oblique cutting.	03
	(b) Enlist the work holding devices generally used in a lathe machine. Explain any two of them.	04
	(c) List the methods of taper turning on lathe machine. Explain with neat sketch the taper turning method that can be used for taper turning long length job.	07
OR		
Q.3	(a) Explain half-nut mechanism with sketch. Also draw facing, parting off operations with usual notations.	07
	(b) Explain half-nut mechanism with sketch. Also draw facing, parting off operations with usual notations.	07
	(c) Explain half-nut mechanism with sketch. Also draw facing, parting off operations with usual notations.	07
Q.3	(a) Give any four field applications/operations of drilling machine.	03
	(b) Write a short note on horizontal boring machine.	04
	(c) Describe Radial Drilling machine with all details.	07
OR		
Q.3	(a) Differentiate between drilling and boring operations.	03
	(b) What are different tool holding devices of drilling machine? Describe one with sketch.	04
	(c) Draw and explain nomenclature of drill bit.	07
Q.4	(a) List out the alignment test required for milling machine.	03
	(b) Differentiate between Up milling and Down milling processes.	04
	(c) Describe Knee and column Vertical Milling machine with a neat sketch.	07
OR		
Q.4	(a) Classify Milling machine.	03
	(b) List out various milling machine operations and explain any two.	04
	(c) Explain single indexing and compound indexing in milling machine.	07
Q.5	(a) What is broaching? How broaches are classified?	03
	(b) Explain dressing and truing of grinding wheel.	04
	(c) Explain Indian standard marking system for grinding wheels.	07
OR		
Q.5	(a) Explain how to cut internal keyway on slotter machine with neat sketch.	03
	(b) Explain types of grinding wheel and its selection process.	04
	(c) Explain about crank and slotted link quick return mechanism in shaper machine.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:3141908****Date:24-01-2024****Subject Name: Manufacturing Processes****Time: 10:30 AM TO 01:00 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) Classify basic machine tools used in the workshop.	03
	(b) Describe primary and secondary motions used in the machine tools.	04
	(c) Illustrate single point cutting tool geometry and its signature with sketch.	07
Q.2	(a) Describe about alignment test of lathe machine.	03
	(b) Differentiate between Capstan and Turret Lathe	04
	(c) List the different methods of taper turning on lathe. Explain about taper turning attachment with neat sketch.	07
	OR	
	(c) Elaborate Operations carried out on lathe machine with a neat sketch.	07
Q.3	(a) Differentiate between drilling and boring operations.	03
	(b) Write a short note on radial drilling machine.	04
	(c) Classify drills. Explain nomenclature of twist drill with neat sketch.	07
	OR	
Q.3	(a) Give any four applications of drilling machine.	03
	(b) Explain horizontal boring machine with neat sketch.	04
	(c) List the drilling operations. Explain any five operations with neat sketches.	07
Q.4	(a) Differentiate between Up milling and Down milling processes.	03
	(b) Explain alignment test of Milling machine with a sketch.	04
	(c) Explain about crank and slotted link quick return mechanism in shaper machine.	07
	OR	
Q.4	(a) Classify Milling machine as per application and structure.	03
	(b) What is indexing? Describe direct indexing with example.	04
	(c) With the help of a neat sketch explain the column and knee type milling machine and name its main parts.	07
Q.5	(a) Write advantages and limitations of broaching.	03
	(b) How grinding wheel is specified?	04
	(c) Illustrate surface grinding machine with a neat sketch.	07
	OR	
Q.5	(a) Explain how to cut internal keyway on slotter machine with neat sketch.	03
	(b) Explain about dressing and truing of grinding wheel.	04
	(c) Describe grinding wheel characteristics and wheel selection procedure in details.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV(NEW) EXAMINATION – WINTER 2022****Subject Code:3141908****Date:17-12-2022****Subject Name:Manufacturing Processes****Time:10:30 AM TO 01:00 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) Give the classification of Machine Tools. **03**
(b) Explain working and auxiliary motions in machine tools with diagram. **04**
(c) Illustrate single point cutting tool geometry and its signature with sketch. **07**

- Q.2** (a) List out all specifications of Lathe machine. **03**
(b) Explain any six operations carried out on lathe machine. **04**
(c) Describe alignment test of Lathe Machine tools with a neat diagram. **07**

OR

- (c) Elaborate Capstan and Turret Lathes. **07**

- Q.3** (a) Give any four field operations / applications of drilling machine. **03**
(b) Illustrate any five operations carried out on drilling machine. **04**
(c) Describe Horizontal boring machine with a neat sketch. **07**

OR

- Q.3** (a) Explain taper turning methods of Lathe machine. **03**
(b) Differentiate between counter boring and counter sinking operations in drilling machine. **04**
(c) Elaborate thread cutting operation on lathe machine using gear trains. **07**

- Q.4** (a) Classify milling machine as per field of applications. **03**
(b) Discuss and explain any six operations carried out on milling machine. **04**
(c) Describe Knee and column Vertical Milling machine with a neat sketch. **07**

OR

- Q.4** (a) Discuss about Indexing mechanism of Milling machine. **03**
(b) Demonstrate milling cutters with its line diagram and applications **04**
(c) Explain shaper machine with all the details and operations. **07**

- Q.5** (a) Give the classification of Planner, Shaper and Slotter Machine tools. **03**
(b) Discuss about specifications of Planner and Shaper machine. **04**
(c) Illustrate Reciprocating sawing machine with a neat sketch and applications. **07**

OR

- Q.5** (a) Explain different types of grinding processes. **03**
(b) Illustrate about center less grinders with its advantages and limitations. **04**
(c) Describe grinding wheel characteristics and wheel selection procedure in details. **07**
