

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV EXAMINATION – SUMMER 2025

Subject Code:3141908

Date:19-05-2025

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 detailed classification of machine tools. **03**
- (b) Describe the working and auxiliary motions in machine tools **04**
- (c) Illustrate the single-point cutting tool geometry and tool signature with a sketch. **07**
- Q.2** (a) List out Operations carried on engine lathe machine tools. **03**
- (b) What is an alignment test? Describe in detail the alignment process for a lathe machine. **04**
- (c) Describe the construction and key components of an engine lathe, including all arrangements, and provide a relevant diagram. **07**
- OR**
- (c) Explain how thread cutting is performed on a lathe using the gear train and the chasing dial. **07**
- Q.3** (a) Enumerate the different types of drilling machines and their particular functions. **03**
- (b) Explain any four operations carried out on the Radial drilling machine. **04**
- (c) Describe the steps involved in performing an alignment test on a drilling machine, and include a clear diagram. **07**
- OR**
- Q.3** (a) List out the functions, advantages, and disadvantages of a boring machine. **03**
- (b) Differentiate between drilling machines and boring machines. **04**
- (c) Describe the Horizontal boring machines with a neat diagram. **07**
- Q.4** (a) Categorize milling machines according to their applications and construction. **03**
- (b) Describe milling cutters and include a drawing to illustrate them. **04**
- (c) Explain any five milling operations with a neat sketch. **07**
- OR**
- Q.4** (a) Write advantages and limitations of broaching **03**
- (b) Outline the differences between up milling and down milling. **04**
- (c) Explain single indexing and compound indexing in milling machine. **07**
- Q.5** (a) Give the classification of Planner, Shaper and Slotter Machine tools. **03**
- (b) How grinding wheel is specified? **04**
- (c) Explain about crank and slotted link quick return mechanism in shaper machine. **07**

OR

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2024****Subject Code:3141908****Date:03-07-2024****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

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|------------|--|-----------|
| Q.1 | (a) Give the classification of Machine tools | 03 |
| | (b) Explain any six operations carried out on lathe machine. | 04 |
| | (c) Explain Grinding wheel designation system in detail. | 07 |
| Q.2 | (a) Describe in brief how you can machine circular surface in a slotting machine. | 03 |
| | (b) Why cutting forces are measured? what are the different ways to measure cutting forces. | 04 |
| | (c) Draw single point cutting tool and explain tool signature as per ASA | 07 |
| OR | | |
| | (c) Explain primary and auxiliary motions with reference to machine tool. | 07 |
| Q.3 | (a) List the methods / equipment for mounting cutters on a horizontal boring machine. | 03 |
| | (b) Describe methods of taper turning on center lathe. | 04 |
| | (c) Explain radial drilling machine with neat sketch. | 07 |
| OR | | |
| Q.3 | (a) Describe the various types of operations that can be performed by a vertical boring machine in brief. | 03 |
| | (b) What are the basic parts of Engine lathe? Discuss the function of head stock. | 04 |
| | (c) Draw a sketch of simple twist drill with tapered shank and show its various elements. | 07 |
| Q.4 | (a) What are the advantages of Hydraulic shaper over crank shaper? Discuss | 03 |
| | (b) Differentiate Planner Machine and Shaper Machine. | 04 |
| | (c) Explain whitworth quick return mechanism used in shaper in brief. | 07 |
| OR | | |
| Q.4 | (a) Define feed, speed and depth of cut in shaper. | 03 |
| | (b) What type of operations can be performed efficiently by planner ? explain in brief, | 04 |
| | (c) Name and describe the various work holding devices in shapers. | 07 |

- Q.5 (a)** What is Sawing? List different types of Sawing Machine. **03**
- (b)** Compare between plain and universal milling machine. **04**
- (c)** Describe various milling processes with neat sketch. **07**

OR

- Q.5 (a)** Sketch different elements of Broach and describe them briefly. **03**
- (b)** Discuss how cutting force changes with variation of speed and angle of milling cutter. **04**
- (c)** What are the different methods of indexing? Explain any one in detail. **07**

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023****Subject Code:3141908****Date:19-07-2023****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) Explain primary motion and secondary motion in centre lathe.	03
	(b) How is a lathe specified? Explain with a neat sketch the relevance. Of each of the specification points.	04
	(c) Draw single point cutting tool and explain tool signature as per ASA.	07
Q.2	(a) Differentiate between Orthogonal and Oblique cutting.	03
	(b) What type of work holding devices are generally used in a lathe? Explain any two of them.	04
	(c) Explain half-nut mechanism with sketch. Also draw facing, parting off operations with usual notations.	07
OR		
	(c) What are the various methods available for taper turning on a centre lathe? Explain in detail with a sketch, the methods used for machining steep tapers of short length.	07
Q.3	(a) What are the difference between Capstan and Turret lathes?	03
	(b) What are different tool holding devices of drilling machine. Describe one with sketch.	04
	(c) Sketch and describe in brief of a radial drilling machine.	07
OR		
Q.3	(a) Is it possible to correct an out of round hole with a reamer? If not, give reasons. If possible, specify the type of reamer used for the purpose.	03
	(b) In a tap of out side diameter 10mm. Pitch of the thread 1.5 mm depth of the thread $d=0.61p$ then What is the diameter of nearest drill?	04
	(c) Describe a tapping attachment in drill machine.	07
Q.4	(a) Differentiate between Upmilling and Downmilling processes.	03
	(b) Write any two milling machine operation with sketch.	04
	(c) What is indexing? Describe direct indexing, with example.	07
OR		
Q.4	(a) Explain Gang milling and Form milling operations.	03
	(b) Compare in detail shaper and Planner.	04
	(c) Explain about crank and slotted link quick return mechanism in shaper machine.	07

- Q.5** (a) Write advantages and limitations of broaching. **03**
(b) Explain dressing and truing of grinding wheel. **04**
(c) Explain Indian standard marking system for grinding wheels. **07**

OR

- Q.5** (a) What is broaching? How broaches are classified? **03**
(b) Write classification of sawing machine. Explain any one. **04**
(c) Explain any one Alignment test of Lathe machine with neat sketch. **07**

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022

Subject Code:3141908**Date:04-07-2022****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.

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) Elaborate Horizontal Boring machine with a suitable sketch.	07
Q.2	(a) Describe about alignment test of lathe machine.	03
	(b) Differentiate between Capstan and Turret Lathe.	04
	(c) Elaborate Operations carried out on lathe machine with a neat sketch.	07
OR		
	(c) Explain Thread cutting operations done on Lathe machine.	07
Q.3	(a) Interpret an application of the basic machine tools.	03
	(b) Sketch and explain reciprocating sawing machine.	04
	(c) Elaborate slotter machine tool with a suitable diagram.	07
OR		
Q.3	(a) Classify Milling machine as per application and structure.	03
	(b) Explain with sketch any five operations carried out on Drilling machine.	04
	(c) Describe Radial Drilling machine with all details.	07
Q.4	(a) Differentiate between up milling and down milling.	03
	(b) Describe milling cutters with a sketch.	04
	(c) Elaborate Knee and Column horizontal Milling machine.	07
OR		
Q.4	(a) Explain helical milling operations with its limitations.	03
	(b) Explain alignment test of Milling machine with a sketch.	04
	(c) Illustrate all operations carried out on Milling machine.	07
Q.5	(a) Outline the specifications of Lathe machine	03
	(b) Describe cylindrical grinding machine with a sketch.	04
	(c) Elaborate Shaper machine with a neat sketch.	07
OR		
Q.5	(a) Summarize the specifications of Milling machine.	03
	(b) Explain types of grinding wheel and its selection process.	04
	(c) Illustrate surface grinding machine with a neat sketch.	07
