

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023****Subject Code:3142509****Date:19-07-2023****Subject Name:Manufacturing Technology -I****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) Discuss basic elements of metal cutting. | 03 |
| | (b) What is the role of machine tools in manufacturing | 04 |
| | (c) Draw single point cutting tool and explain tool signature as per ASA. | 07 |
| Q.2 | (a) Explain the benefits of using cutting fluid during cutting operation. | 03 |
| | (b) Compare Orthogonal and Oblique cutting. | 04 |
| | (c) Explain radial drilling machine with neat sketch. | 07 |
| | OR | |
| | (c) Explain primary and auxiliary motion with reference to machine tool. | 07 |
| Q.3 | (a) What are the advantages of hydraulic shaper over crank shaper? | 03 |
| | (b) How the size of Planner is specified? | 04 |
| | (c) Explain various types of chucks use on lathe machine. | 07 |
| | OR | |
| Q.3 | (a) Due to which property of Cast Iron, it is highly preferred for manufacturing of lathe bed? Explain. | 03 |
| | (b) Describe the nomenclature of drill bit with neat sketch. | 04 |
| | (c) Explain merchant circle diagram. | 07 |
| Q.4 | (a) What do you mean by speed, feed and depth of cut? | 03 |
| | (b) List the benefits of quick return mechanism. | 04 |
| | (c) Define the terms 1). Gang milling 2). Straddle milling
3). String milling | 07 |
| | OR | |
| Q.4 | (a) Explain Centreless internal grinding operation with a diagram. | 03 |
| | (b) Write classification of Sawing machine. Explain any one in brief. | 04 |
| | (c) Explain Indian standard marking system for grinding wheel. | 07 |
| Q.5 | (a) “Taper turning by swiveling the compound rest method” Explain with diagram. | 03 |
| | (b) Explain types of reamers. | 04 |
| | (c) Differentiate between up-milling and down-milling | 07 |
| | OR | |
| Q.5 | (a) Explain jig boring machine. | 03 |
| | (b) What is safety precautions associated with sawing and broaching machine? | 04 |
| | (c) State the factors to be considered for the selection of grinding wheel. Explain the importance of wheel diameter. | 07 |
