

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2024****Subject Code:3142509****Date:27-11-2024****Subject Name: Manufacturing Technology -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

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|------------|-----|--|-----------|
| Q.1 | (a) | Explain working and auxiliary motions in machine tools. | 03 |
| | (b) | Establish relation between chip thickness and shear plane angle. | 04 |
| | (c) | What are the variables to be considered in economics of metal cutting explain in detail. | 07 |
| Q.2 | (a) | Classify various milling machines. | 03 |
| | (b) | What is the function of dividing heads? Explain with figure. | 04 |
| | (c) | Explain helical and spiral milling operation with figure. | 07 |
| | | OR | |
| | (c) | Explain in detail (i) Boring operation (ii) Reaming operation (iii) Knurling operation on lathe machine. | 07 |
| Q.3 | (a) | Classify various planner machines. | 03 |
| | (b) | Explain working principle of planner machine. | 04 |
| | (c) | Explain working principle of slotters. | 07 |
| | | OR | |
| Q.3 | (a) | Classify various broaching machines. | 03 |
| | (b) | How machining time is calculated in broaching operation | 04 |
| | (c) | State advantages and limitations of broaching. How broaching speed is calculated? | 07 |
| Q.4 | (a) | Describe a band saw. | 03 |
| | (b) | Explain radial drilling machine. | 04 |
| | (c) | Nomenclature of drill bit and importance of various angles in operation explain in brief. | 07 |
| | | OR | |
| Q.4 | (a) | State various failures of saw blade. | 03 |
| | (b) | Explain in brief common form of abrasive tools. | 04 |
| | (c) | Classify various boring machines. | 07 |
| Q.5 | (a) | How grinding wheels are classified? | 03 |
| | (b) | Explain in brief foundation of machine tool. | 04 |
| | (c) | Explain Alignment test for lathe machine. | 07 |
| | | OR | |
| Q.5 | (a) | Classify various Grinding machines. | 03 |
| | (b) | Explain working principle of centreless grinding. | 04 |
| | (c) | Explain loading, glazing and trueing of grinding wheels. | 07 |
