

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V EXAMINATION – SUMMER 2025

Subject Code:3152007

Date:17-05-2025

Subject Name:Manufacturing Technology

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) | Define honing and lapping. | 03 |
| | (b) | Explain the importance of manufacturing processes in the context of recent development. | 04 |
| | (c) | Give broad classification of various manufacturing processes. Also describe the factors affecting the selection of manufacturing process for a production. | 07 |
| Q.2 | (a) | What is the benefit of Split pattern over a one piece or solid pattern? | 03 |
| | (b) | Why the properties like permeability, Compressive strength, Flow ability and Hardness are required in a molding sand? Explain with appropriate reasons for each of them. | 04 |
| | (c) | What are the different types of patterns? Describe any two with figure. | 07 |
| OR | | | |
| | (c) | Classify the type of Foundry furnaces. Describe cupola furnace with neat sketch. | 07 |
| Q.3 | (a) | What is difference between nozzles of oxy-acetylene gas welding process and oxy-acetylene gas cutting process? Why? Explain with help of neat sketches. | 03 |
| | (b) | Manual metal arc welding is preferred for applications like repair and maintenance work and structural work. Justify with the help of welding requirements of these applications and capabilities of MMAW. | 04 |
| | (c) | Discuss about various modes of metal transfer in arc welding process. Also explain about specific function of various ingredients to be added in the welding rod for arc welding. | 07 |
| OR | | | |
| Q.3 | (a) | When the metal working is termed as cold working? And when it is termed as hot working? | 03 |
| | (b) | State differences between direct and indirect extrusion with sketches. | 04 |
| | (c) | Enlist the various types of presses used in forging. Explain with neat sketch. | 07 |
| Q.4 | (a) | With help of figure explain “Taper Turning by setting over the tail stock method”. | 03 |
| | (b) | Explain in brief different type of Lathe-centers used on tail stock side of a lathe machine. | 04 |
| | (c) | Define a basic machine tool. Classify them what are the general requirements of machine tools. | 07 |

OR

- Q.4** (a) Differentiate between a shaper and a planer. **03**
 (b) Explain different operations performed with help of a drilling machine. **04**
 (c) Differentiate between capston and turret lathe. **07**

- Q.5** (a) Explain following terminology of grinding wheel with suitable example. **03**
 (i) Grit material (ii) Grit size.
 (b) Explain Jig boring machine. **04**
 (c) How grinding wheel is specified? Explain in detail. **07**

OR

- Q.5** (a) Explain the terms (a) Glazing (b) Loading (C) Dressing. **03**
 (b) Sketch and compare up milling and down milling. **04**
 (c) Classify broaching machine. Explain horizontal pull type broaching machine. **07**
