

GUJARAT TECHNOLOGICAL UNIVERSITY

BE-5 SEMESTER – OLD PAPER – S22 TO S25 – QUESTION BANK

Subject Name & Code:

Manufacturing Technology- 3151912

Unit 1: Introduction to Manufacturing Technology

Repeated Questions:

- **Q.** Classify manufacturing processes.
 - **Appeared in:** WIN 2022 (Q1a, 03 Marks), WIN 2023 (Q1a, 03 Marks), WIN 2024 (Q1a, 03 Marks)
- **Q.** Define Manufacturing processes and enlist various manufacturing processes.
 - **Appeared in:** SUM 2022 (Q1a, 03 Marks), SUM 2025 (Q1a, 03 Marks)
- **Q.** Discuss the factors for selecting a manufacturing process. / How is the selection of manufacturing process influenced by material and quantity?
 - **Appeared in:** SUM 2022 (Q1b, 04 Marks), WIN 2023 (Q2a, 03 Marks)

Other Important Questions:

- **Q.** What is the significance of Manufacturing processes for recent development? (WIN 2024, Q2a, 03 Marks)
- **Q.** Name the various patterns that are normally encountered in the foundry practices. (SUM 2023, Q1a, 03 Marks)
- **Q.** List out types of Pattern and explain any three pattern with a neat sketch. (WIN 2022, Q1b, 04 Marks)
- **Q.** Explain following patterns with neat sketch: i) Match plate pattern ii) Gated patterns (WIN 2023, Q2b, 04 Marks)
- **Q.** With the help of a neat sketch explain where sweep patterns are employed. (SUM 2023, Q2a, 03 Marks)

Unit 2: Foundry Technology (Casting)

Repeated Questions:

- **Q.** Explain various types of pattern allowances with a neat sketch.
 - **Appeared in:** SUM 2025 (Q2a, 03 Marks), SUM 2022 (Q3b, 04 Marks), WIN 2022 (Q1c, 07 Marks), WIN 2024 (Q1c, 07 Marks)
- **Q.** What is a gating system? Why is a down sprue tapered? What are its functions?
 - **Appeared in:** SUM 2022 (Q3a & Q3c, 03 & 07 Marks), WIN 2023 (Q2c, 07 Marks), WIN 2024 (Q3b, 04 Marks)
- **Q.** Explain the casting defects in detail with a diagram.
 - **Appeared in:** SUM 2025 (Q1c, 07 Marks), SUM 2025 (Q2c, 07 Marks), WIN 2022 (Q2c, 07 Marks)
- **Q.** Explain the Investment casting process.
 - **Appeared in:** SUM 2025 (Q3c, 07 Marks), WIN 2022 (Q2c, 07 Marks)

Other Important Questions:

- **Q.** Explain properties of moulding sand. / Enlist the properties of moulding sand. Explain any four. (SUM 2025, Q1b, 04 Marks; WIN 2024, Q2c, 07 Marks)
- **Q.** What is core? Why and when are cores used? Sketch different types of cores. (SUM 2023, Q2b, 04 Marks; SUM 2025, Q2b, 04 Marks; WIN 2024, Q2b, 04 Marks)
- **Q.** Compare precision investment casting and shell moulding. (SUM 2023, Q2c, 07 Marks)
- **Q.** Describe the Shell mould casting process. (SUM 2022, Q3c, 07 Marks)
- **Q.** Explain Cupola furnace with a neat sketch. (SUM 2022, Q3a, 03 Marks)
- **Q.** State the Chvorinov's rule. Discuss it briefly. (WIN 2023, Q1a, 03 Marks)
- **Q. Numerical:** A slab of size 300*300*50 mm is to be cast... Calculate the freezing ratio. (WIN 2023, Q2c, 07 Marks) - **This is a crucial numerical. Practice it.**
- **Q.** Discuss about Riser design of casting. (WIN 2022, Q5a, 03 Marks)
- **Q.** Explain Blow holes, Misrun and warpage in terms of casting. (WIN 2024, Q3a, 03 Marks)

Unit 3: Metal Joining Processes

Repeated Questions:

- **Q.** State the purpose of coating on an arc welding electrode.
 - **Appeared in:** SUM 2025 (Q3a, 03 Marks), SUM 2022 (Q2a, 03 Marks), SUM 2025 (Q1a, 03 Marks)
- **Q.** Differentiate between TIG and MIG welding processes.
 - **Appeared in:** SUM 2022 (Q4b, 04 Marks), WIN 2023 (Q3b, 04 Marks), WIN 2024 (Q1b, 04 Marks)
- **Q.** Explain the Gas welding process. Sketch the types of flames used in oxy-acetylene welding and give their uses.
 - **Appeared in:** SUM 2023 (Q3a/c, 03/07 Marks), SUM 2025 (Q3c, 07 Marks), WIN 2024 (Q3c, 07 Marks)
- **Q.** Differentiate between soldering and brazing.
 - **Appeared in:** WIN 2023 (Q3a, 03 Marks), WIN 2024 (Q3a, 03 Marks)
- **Q.** Explain the Resistance welding principle. Differentiate between Spot and Seam welding.
 - **Appeared in:** SUM 2022 (Q2c, 07 Marks), WIN 2024 (Q2c, 07 Marks)

Other Important Questions:

- **Q.** Classify the welding process in detail. (SUM 2025, Q3a, 03 Marks)
- **Q.** Explain Polarity in arc welding. (SUM 2024, Q1a, 03 Marks)
- **Q.** Discuss the TIG welding process setup with a neat sketch. (SUM 2025, Q3c, 07 Marks)
- **Q.** Describe the thermit welding process. (SUM 2023, Q3c, 07 Marks)
- **Q.** What is arc blow? How to reduce it? (SUM 2023, Q3b, 04 Marks)
- **Q.** Enlist the defects that are generally found in welding. Describe their cause and remedies. (SUM 2023, Q3c, 07 Marks; SUM 2022, Q2b, 04 Marks)
- **Q.** Distinguish between Plasma and Laser Beam welding processes. (WIN 2022, Q3c, 07 Marks; SUM 2024, Q4c, 07 Marks)

Unit 4: Forming and Shaping Processes

Repeated Questions:

- **Q.** Explain hot working and cold working processes. Compare them.
 - **Appeared in:** SUM 2023 (Q1c, 07 Marks), SUM 2022 (Q1c, 07 Marks), WIN 2024 (Q3c, 07 Marks)
- **Q.** Distinguish between wire drawing and tube drawing with neat sketches.
 - **Appeared in:** SUM 2025 (Q4b, 04 Marks), SUM 2022 (Q4b, 04 Marks)
- **Q.** Classify extrusion processes and explain forward and backward extrusion process.
 - **Appeared in:** SUM 2025 (Q4c, 07 Marks), WIN 2022 (Q4c, 07 Marks)
- **Q.** Define: Deep drawing, Coining and Embossing.
 - **Appeared in:** SUM 2025 (Q4a, 03 Marks), WIN 2022 (Q4a, 03 Marks)

Other Important Questions:

- **Q.** Write difference between Hot rolling and Cold rolling. Explain the terms: Bloom, Billet, Slab, Plate, and sheet. (SUM 2025, Q1c, 07 Marks)
- **Q.** Define: Ingot, Bloom, Billet. (SUM 2022, Q4a, 03 Marks; WIN 2024, Q4a, 03 Marks)
- **Q.** Explain the effects of strain hardening / Explain in brief Strain Hardening. (WIN 2023, Q4a, 03 Marks; SUM 2022, Q4a, 03 Marks)
- **Q.** Explain with sketches the difference between direct and indirect extrusion. (SUM 2023, Q4c, 07 Marks)
- **Q.** Differentiate between punching and blanking operations. (WIN 2023, Q1c, 07 Marks; WIN 2024, Q4c, 07 Marks)
- **Q.** Explain shearing, piercing, and blanking operations. (SUM 2025, Q5a, 03 Marks; SUM 2025, Q4a, 03 Marks)
- **Q.** Enlist Forging operations. Discuss any two with a neat sketch. (WIN 2024, Q4c, 07 Marks)
- **Q.** Define Forward slip, Backward slip, and Neutral point in Rolling. (SUM 2022, Q5a, 03 Marks) - **Important definition.**
- **Q.** Derive the equation for the length of the deformation zone during rolling. (SUM 2024, Q3b, 04 Marks) - **A derivation question.**

Unit 5: Plastic Technology

Repeated Questions:

- **Q.** Explain the Injection moulding process with its principle, advantages, limitations, and applications.
 - **Appeared in:** SUM 2025 (Q5c, 07 Marks), SUM 2022 (Q5c, 07 Marks), WIN 2022 (Q5b, 04 Marks)
- **Q.** Differentiate between Thermoplastics and Thermosetting plastics.
 - **Appeared in:** SUM 2023 (Q4a, 03 Marks), SUM 2025 (Q5a, 03 Marks)
- **Q.** Explain the Blow moulding process.
 - **Appeared in:** WIN 2022 (Q5c, 07 Marks), WIN 2024 (Q5c, 07 Marks)

Other Important Questions:

- **Q.** Discuss the general properties of plastics. (WIN 2022, Q5a, 03 Marks; SUM 2024, Q3a, 03 Marks)
- **Q.** Name the processes used for making: Plastic bottles, buckets, etc. (SUM 2023, Q4a, 03 Marks)
- **Q.** Explain the calendaring process. (SUM 2025, Q5b, 04 Marks; SUM 2022, Q5b, 04 Marks)
- **Q.** Describe the thermoforming process. What are its applications? (SUM 2023, Q5c, 07 Marks)
- **Q.** Distinguish between thermoforming and extrusion process for plastics. (SUM 2022, Q4c, 07 Marks)

Unit 6: Advance Super Finishing Technology

Repeated Questions:

- **Q.** Explain/Differentiate between Lapping, Honing, Buffing, and Polishing.
 - **Appeared in:** SUM 2023 (Q5b, 04 Marks), SUM 2024 (Q1b, 04 Marks), WIN 2022 (Q5b, 04 Marks), WIN 2024 (Q5b, 04 Marks)
- **Q.** Explain the Burnishing process with a neat sketch.
 - **Appeared in:** SUM 2022 (Q5c, 07 Marks), WIN 2022 (Q5c, 07 Marks), SUM 2025 (Q5c, 07 Marks)

Other Important Questions:

- **Q.** Why do we require high-quality surface finish components? (SUM 2023, Q5a, 03 Marks; SUM 2025, Q5a, 03 Marks)
- **Q.** Compare various surface finishing processes in terms of tolerance and roughness. (SUM 2023, Q5a, 03 Marks)
- **Q.** How does superfinishing differ from honing? (SUM 2023, Q5b, 04 Marks)
- **Q.** Illustrate Barrel Tumbling process with a neat sketch. (WIN 2022, Q5c, 07 Marks; SUM 2025, Q5c, 07 Marks)
- **Q.** Enlist types of super finishing processes. Discuss the selection criteria. (SUM 2022, Q4c, 07 Marks)
