

B. M. S. College of Engineering, Bengaluru - 560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E.

Branch: Aerospace Engineering

Course Code: 19AE3DCMTA

Course: Manufacturing Technology for Aerospace Engg.

Semester: III

Duration: 3 hrs.

Max Marks: 100

Date: 15.09.2023

Instructions:

1. Draw figures wherever necessary.
2. Assume suitable data wherever necessary.

UNIT - I

1. a) Which of the primary manufacturing processes is most suitable for the products listed below? Explain each of them in brief. (a) Crankshaft, (b) I-sections, (c) Steel wires, (d) Bevel gears, (e) Metal rods. **10**
- b) Explain the characteristics of sand mould. **4**
- c) Describe the casting defects developed due to entrainment of gases. Draw neat sketches and suggest the remedies for these defects. **6**

UNIT - II

2. a) Explain with the sketch the various roller arrangements. State their purposes. **10**
- b) Distinguish clearly between embossing and coining. **4**
- c) Discuss the Ultrasonic Welding process along with its applications. **6**

UNIT - III

3. a) State the differences between single-point cutting tool and multi-point cutting tool. **6**
- b) Write down Taylor's tool life equation identifying each term in it. Which are the other methods used for measuring the tool life? **6**
- c) Discuss briefly the Water Jet Machining process. Explain how it can be made more effective. **8**

OR

4. a) Explain the various types of grinding wheels. **6**
- b) Write a short note on cutting fluids used during the machining operations. **7**

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

- c) Discuss the principle of LBM with a neat sketch. **7**

UNIT - IV

5. a) Distinguish clearly between CNC and DNC machines. **7**
b) Explain the LOM process with a neat sketch. **7**
c) Briefly discuss on-demand manufacturing process. **6**

UNIT - V

6. a) Highlight the characteristics of Quality Management System in Aerospace Industry. State its benefits. **7**
b) Discuss the role of the assembly line in manufacturing an aircraft. **7**
c) Explain briefly the extrusion process for gear manufacturing. **6**

OR

7. a) Explain the manufacturing processes of the combustion chamber, turbine blades/discs, and exhaust system of a typical jet engine. **8**
b) Illustrate the gear cutting process using a shaper cutter. **6**
c) Discuss how the quality of a product is assured in a typical manufacturing process. **6**
