

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

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E.

Branch: Aerospace Engineering

Course Code: 19AE3DCMTA

Course: Manufacturing Technology for Aerospace Engineers

Semester: III

Duration: 3 hrs.

Max Marks: 100

Instructions:

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

UNIT - I

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|---|----|---------------------------------------------------------------------------------------|-----------|
| 1 | a) | Explain and draw a flowchart classifying manufacturing processes. | 08 |
| | b) | What is the difference between true centrifugal casting and semi centrifugal casting? | 04 |
| | c) | Explain the required properties of casting sand. | 08 |

UNIT - II

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|---|----|---------------------------------------------------------------------------------|-----------|
| 2 | a) | Explain with neat diagrams the direct and indirect extrusion process. | 06 |
| | b) | Explain with neat diagrams of the wire and bar drawing. | 05 |
| | c) | Explain with neat diagrams the three major categories of sheet metal processes. | 09 |

UNIT - III

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|---|----|--------------------------------------------------------------------------------------------------|-----------|
| 3 | a) | Explain the seven elements of tool geometry for a single-point cutting tool with a neat diagram. | 10 |
| | b) | Explain various mechanisms of cutting tool wear. | 05 |
| | c) | Explain with a neat diagram of Laser beam machining. | 05 |

OR

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|---|----|--------------------------------------------------------------|-----------|
| 4 | a) | Explain with a neat diagram of Plasma arc machining. | 07 |
| | b) | Explain with a neat diagram of electric discharge machining. | 07 |
| | c) | Explain the types of cutting fluids. | 06 |

UNIT - IV

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|---|----|--------------------------------------------------------------------------------|-----------|
| 5 | a) | Discuss the solid-state welding process used for joining two different metals. | 07 |
| | b) | Explain the concepts of Rapid prototyping. | 08 |
| | c) | What is a numerical control? Explain the concept of CNC and DNC. | 05 |

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.

OR

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|---|----------------------------------------------------------------------------------------|-----------|
| 6 | a) Explain the solid ground curing-based Rapid prototyping process with a neat sketch. | 05 |
| | b) Classify and explain the CNC control systems. | 12 |
| | c) List out the advantages of CNC. | 03 |

UNIT - V

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|---|-----------------------------------------------------------------------------------------------|-----------|
| 7 | a) Explain the gear sintering manufacturing techniques with their advantages and neat sketch. | 07 |
| | b) Classify and explain the different types of gear with neat diagrams. | 06 |
| | c) Explain the processes used for manufacturing various components of a typical jet engine. | 07 |

B.M.S.C.E. - ODD SEM 2023-24