

Code: 20ME3404

**II B.Tech - II Semester – Regular Examinations – JULY 2022**

**MANUFACTURING PROCESSES  
(MECHANICAL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

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Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.  
2. All parts of Question must be answered in one place.

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**UNIT – I**

1. a) Explain how the shape and the size of sand grains affect the permeability and green strength of moulding sand. 7 M  
b) Explain the causes for the change in the composition of melt obtained from cupola. 7 M

OR

2. a) What is meant by core prints? Explain how they are to be provided. 7 M  
b) What all types of cavities are seen as casting defects? Explain the formation of them during solidification. 7 M

**UNIT – II**

3. a) Briefly explain various methods available for break down passes in rolling. Explain their applications. 7 M  
b) How are collapsible tubes of aluminium manufactured? Explain with a sketch. 7 M

OR

4. a) What do you understand by the term flash in a forging?  
Explain with the help of a sketch. 7 M
- b) Explain the process of stretch forming with a sketch.  
Give its applications. 7 M

### UNIT-III

5. a) Illustrate the process of thermit welding with a sketch.  
Mention its applications. 7 M
- b) Write short notes on the following elements used in Gas Tungsten Arc Welding:
- (i) Electrode
  - (ii) Power supply
  - (iii) Shielding gases
  - (iv) Filler metal 7 M

OR

6. a) What are the advantages, limitations and applications of laser welding process? 7 M
- b) Describe the method of explosive welding process with the help of a line sketch. 7 M

### UNIT – IV

7. a) Explain in detail about types of penetrants used for liquid penetrant testing. 7 M
- b) Illustrate the principle of pulse echo method with neat sketch in ultrasonic testing method. 7 M

OR

8. a) Explain in detail about the factors influencing the selection of NDT methods. 7 M

- b) Write down the advantages, limitations and applications of Magnetic particle testing method. 7 M

**UNIT – V**

9. a) Explain how components are manufactured using Mechanical & vacuum thermoforming. 7 M
- b) Differentiate dry pressing and semi-dry pressing of traditional ceramic parts with an example. 7 M

OR

10. a) Briefly explain the steps in powder metallurgy process with a block diagram. 7 M
- b) What are the significant differences in the equipment and operating procedures between injection molding of thermoplastics and injection molding of thermosets? 7 M