

3E1634

Roll No. _____

[Total No. of Pages : 3]

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B.Tech. III Semester (Main/Back) Examination - 2014
Mechanical Engg.
3ME4A Manufacturing Processes
(Common With 3AE4A)

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 24

Unit - I

1. a) Define product, pattern and mould. Discuss procedure of mould preparation with neat label diagram. Also, discuss the design significance of various parts of mould system. (8)
- b) What do you mean by moulding sand? Discuss significance of various properties of moulding sand with their testing procedure. (8)

OR

1. Write (any four) short note on: (16)
 - a) Core and core-prints.
 - b) Shell mould casting.
 - c) CO₂ mould casting.
 - d) Casting defects and remedies.
 - e) Centrifugal casting.

Unit - II

2. a) Differentiate between hot working and cold working processes in detail. (8)
- b) What are various metal working defects, their causes and remedies? (8)

OR

2. a) Explain the principle of rolling and extrusion with neat sketch. (8)
- b) With neat sketches, discuss various press-tool operations. Also, discuss coining and embossing operations. (8)

Unit - III

3. a) Define welding, forming and casting processes. Discuss genesis of arc welding and resistance welding with neat diagram. (8)
- b) Explain types of welding defects, their causes and remedies. How flux aid in obtaining quality weld in arc welding.

OR

3. Write short note on followings (any four):

- i) Forge welding
- ii) Ultrasonic welding
- iii) Thermit welding
- iv) Friction welding
- v) Induction welding

Unit - IV

4. a) How metal powders used in powder metallurgy are characterised. What are the steps involved in making products by powder metallurgy technique. (8)
- b) What do you mean by Rapid Prototyping? Explain subtractive and additive processes in details. (8)

OR

4. a) What are the various methods prevailed for the manufacturing of metal powder used in powder metallurgy. Enlist applications of powder metallurgy.
- b) Describe the significance of Rapid Prototyping. What is the concept of virtual prototyping and write its applications. (8)

Unit - V

5. Enlist various plastic parts manufacturing processes and detailed any two methods with neat sketch. **(16)**

OR

5. a) What are the general properties of plastics for engineering components? Differentiate thermo-setting plastics and thermo-plastics. **(8)**
- b) What the ingredients of moulding compounds? Explain laminating and slush moulding methods with neat sketch. **(8)**

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