

3E1414

Roll No. : _____

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B. Tech. (Sem. III) (Main & Back) Examination, January - 2013
Production & Industrial Engg.
3PI4 Manufacturing Processes (Common for ME/AE)

Time : 3 Hours]

[Total Marks : 80

[Min. Passing Marks : 24

Attempt any five questions. Selecting one question from each unit.
All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.
Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL2. NIL**UNIT - I**

- 1 (a) How do you classify manufacturing process ? Explain in detail. 6
- (b) What are the primary requirements of the moulding sand and how each is provided by sand and additive aggregates ? 10

OR

- 1 (a) Explain giving neatly labelled sketches of the processes :
(i) Continuous casting
(ii) Carbon dioxide moulding 12
- (b) Describe the complete procedure of testing permeability of moulding sand. 4



UNIT - II

- 2 (a) Explain briefly the following welding techniques with the help of neat sketches :
- (i) Plasma arc welding
 - (ii) Electron beam welding
- 14
- (b) Describe the types of fluxes used in soldering and their applications.
- 2

OR

- 2 (a) What are the differences between soldering brazing and welding? Explain.
- 4
- (b) Explain the following with the help of neat sketches :
- (i) TIG welding
 - (ii) Laser beam welding
 - (iii) Ultrasonic welding process
- 12

UNIT - III

- 3 Explain briefly the following metal forming process with the help of neat sketches.
- (i) Rolling
 - (ii) Forging
- 16

OR

- 3 (a) Define the concept of strain hardening.
- 4
- (b) Explain briefly the following metal forming process :
- (i) Deep drawing
 - (ii) Wire drawing
 - (iii) Tube drawing
 - (iv) Riveting
- 12



UNIT - IV

- 4 (a) Define powder metallurgy. What are various important techniques for compacting of metal powder ?

2+8=10

- (b) What are the secondary operations we apply in powder metallurgy methods.

6

OR

- 4 (a) What are rapid prototyping operations ? Explain subtractive processes.

6

- (b) Write short notes on following :

(i) Virtual prototyping

(ii) Stereolithography process

2×5=10

UNIT - V

- 5 (a) Discuss general properties and classifications of plastics.

10

- (b) Compare thermo-setting materials with thermo-plastic materials.

6

OR

- 5 (a) Write short notes on :

(i) Plastic processing methods

(ii) Lamination of plastics

12

- (b) Explain calendaring process

4

