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3E1414

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3E1414

B.Tech. (Sem. III) (Main/Back) Examination, February - 2010
(Common for Mech., P. & I. & Automobile Engg.)
(3AE4 Manufacturing Processes)

Time : 3 Hours]

[Total Marks : 80
[Min. Passing Marks : 24

Attempt overall five questions in all. Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly.

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

1. _____ Nil
2. _____ Nil

1 (a) Explain briefly the following casting processes :
(i) Permanent mould casting
(ii) Continuous casting. 12

(b) Explain briefly the following defects in casting :
(i) Blow holes
(ii) Misruns
(iii) Hot tears
(iv) Scab. 4

OR

1 (a) Describe the constructional features and operation of cupola furnace with the help of neat sketch. 8

(b) Explain the investment casting process giving its applications with the help of neat sketch. 8



- 2 Explain briefly the following welding techniques with the help of neat sketches :
- (i) Electron beam welding
 - (ii) Plasma arc welding
 - (iii) TIG welding
 - (iv) Explosive welding.

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OR

- 2 (a) What is the difference between welding, brazing and soldering process ?
- (b) Explain briefly the following welding techniques with the help of neat sketches :
- (i) Laser beam welding
 - (ii) Friction welding.

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- 3 (a) Explain the concept of strain hardening.

6

- (b) Differentiate between hot and cold working process.

6

- (c) Explain briefly the wire drawing process.

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OR

- 3 Explain briefly the following metal forming processes with the help of neat sketches :
- (i) Rolling
 - (ii) Forging
 - (iii) Tube drawing
 - (iv) Extrusion.

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- 4 Explain briefly the following :
- (i) Blending of metal powders
 - (ii) Methods of production of metal powders
 - (iii) Advantages and disadvantages of powder metallurgy.
 - (iv) Pressing or compacting of metal powders.

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OR

- 4 What do you mean by Rapid prototyping operation ? State its advantages, disadvantages and applications. Also explain virtual prototyping.

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- 5 (a) Compare thermosetting materials with thermoplastic materials.

6

- (b) What are the properties of plastics?

6

- (c) What is blow moulding? Explain briefly.

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OR

- 5 Explain following plastic processing methods :

- (i) Transfer moulding
- (ii) Compression moulding
- (iii) Extrusion moulding
- (iv) Slush moulding.

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