

CBCS SCHEME

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18SM36

Third Semester B.Tech. Degree Examination, Feb./Mar. 2022 Manufacturing Process – I

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain in brief the classification of manufacturing processes. Also mention the factors that determine the selection of casting alloy. (08 Marks)
- b. Explain the following:
- (i) Pattern materials
 - (ii) Pattern Allowances
- c. Write a note on binders and additives used in sand molding. (04 Marks)

OR

- 2 a. Explain the working of sand slinger molding machine with a neat sketch. (06 Marks)
- b. Explain the following molding process with neat sketches:
- (i) Shell mold
 - (ii) Investment mold
- c. Explain in brief the concept of gating. (04 Marks)

Module-2

- 3 a. Discuss the construction and working principle of cupola furnace with a neat sketch. (10 Marks)
- b. Explain coreless induction furnace and electric arc furnace with neat sketches. (10 Marks)

OR

- 4 a. Explain the construction and working of high pressure die casting method with a neat sketch. Also mention the advantages and disadvantages. (10 Marks)
- b. With neat sketches, explain the following :
- (i) Centrifugal casting
 - (ii) Thixo casting
- (10 Marks)

Module-3

- 5 a. Write an explanatory note on Nucleation in foundry practice. (06 Marks)
- b. Explain the following:
- (i) Solidification variables
 - (ii) Directional solidification
- c. Explain the degasification method employed in non ferrous foundry practice. (06 Marks)

OR

- 6 a. Explain any FIVE sand casting defects, their causes and remedies. (10 Marks)
- b. Write a note on Fettling and Cleaning of castings. (04 Marks)
- c. Explain the following:
- (i) Advantages of stir casting
 - (ii) Pouring temperature
 - (iii) Grain refining
- (06 Marks)

Module-4

- 7 a. Explain the classification of metal forming processes in brief. Also mention the differences between hot working and cold working of metals. (05 Marks)
b. Explain open die forging and closed die forging with neat sketches. (06 Marks)
c. Explain the following:
(i) Forging equipment (05 Marks)
(ii) Defects in forging (04 Marks)

OR

- 8 a. Explain the different types of rolling mills with neat sketches. (15 Marks)
b. Write a note on rolling defects. (05 Marks)

Module-5

- 9 a. Explain the variables of drawing process in brief. (05 Marks)
b. Explain the following:
(i) Impact extrusion
(ii) Hydrostatic extrusion
(iii) Dies for extrusion (15 Marks)

OR

- 10 a. Explain the following operations:
(i) Piercing
(ii) Punching
(iii) Blanking
(iv) Coining (08 Marks)
b. Discuss Progressive, Compound and Combination dies with relevant sketches. (12 Marks)

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