

Third Semester B. E. (Mechanical Engineering) Examination

MANUFACTURING PROCESSES – I

Paper – 3 ME 05

(USC – 10831)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Separate answer book must be used for each section in the subject Geology, Engineering material of Civil branch and separate answer book must be used for Section A and B in pharmacy and Cosmetic Tech.
- (2) Answer **Three** questions from Section A and **Three** questions from Section B.
- (3) Due credit will be given to neatness and adequate dimensions.
- (4) Assume suitable data wherever necessary.
- (5) Diagrams and chemical equations should be given wherever necessary.
- (6) Illustrate your answer wherever necessary with the help of neat sketches.
- (7) Discuss the reaction, mechanism wherever necessary.
- (8) Use pen of Blue/Black ink/refill only for writing the answer book.

SECTION A

1. (a) Discuss various properties of moulding sand. 7
- (b) What is 'Gating system' ? Sketch common gating system and explain functions of each element. 6

OR

2. (a) What are the steps involved in preparation of casting by sand moulding method. 7
- (b) What is the need of 'core' ? Enlist different types of cores with neat sketches. 6
3. (a) What do you understand by Non destructive testing of castings ? Explain any one method of NDT in detail. 7

- (b) What are advantages of Electric Furnace ? Explain induction furnace with neat sketch. 6

OR

4. (a) How furnaces are classified ? Describe with neat sketch :—
(i) Pit furnace (ii) Indirect Electric Arc furnace. 7
(b) Explain following casting defects :—
(i) Hot Tears (ii) Metal penetration (iii) Misrun and cold shuts. 6

5. (a) What is lost wax (investment) casting ? Explain steps involved in this casting process with neat sketches. 8
(b) Differentiate between Hot chamber and cold chamber die casting. Explain any one method in detail. 6

OR

6. (a) Explain the process of 'True Centrifugal Casting' with neat sketch. 7
(b) What is 'Continuous casting ? Write its applications. Draw a neat sketch and explain its working. 7

SECTION B

7. Explain following mechanical working processes with neat sketches :—
(i) Spinning
(ii) Wire drawing
(iii) Hydrostatic extrusion
(iv) Upsetting. 14

OR

8. (a) Distinguish between Hot working and Cold working. 6

(b) Explain following forging operations :—

(i) Upsetting (ii) Fullering (iii) Heading (iv) Edging. 8

9. (a) What are various mechanical joining processes ? State advantages of mechanical joining over other joining processes. 6
- (b) What are various electrodes used in Arc welding ? Explain various types of coatings or fluxes used on these electrodes. 7

OR

10. (a) Explain process of seam welding with its benefits and limitations. Describe Roll and Stitch welding joint applicable to seam welding. 7
- (b) Compare and define soldering and Brazing processes. Give applications of each. 6
11. (a) What do you mean by 'Electroplating', 'Electroless plating' and 'Electroforming' ? 6
- (b) Explain with neat sketch – 'Submerged arc welding' process. State limitations of the process. 7

OR

12. (a) Explain the following :—
- (i) Metal spraying (ii) Shot peening. 6
- (b) Explain with neat sketch the plasma arc welding process in detail. State its applications. 7

