

1129

**B.E. (Mechanical Engineering)  
Third Semester  
MEC-305: Manufacturing Processes**

**Time allowed: 3 Hours**

**Max. Marks: 50**

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

x-x-x

- I. Attempt the following:-
  - a) What are composites and alloys?
  - b) Draw the three types of patterns.
  - c) What are core and core prints?
  - d) What are the different types of solid solutions?
  - e) Define the term austenite?
  - f) Differentiate between ductile and brittle fracture.
  - g) Name any four welding defects?
  - h) List down any four functions performed by the coating of welding electrode?
  - i) Draw the Gate and Gating system with the help of a neat sketch?
  - j) Write down the applications of MIG welding. (10x1)

**UNIT – I**

- II. Draw iron-iron carbide phase diagram and mark on it all salient temperatures and composition fields. (10)
- III.
  - a) Write down difference between hot working and cold working.
  - b) Explain working principles of forward and backward Extrusion process. (2x5)
- IV.
  - a) What is drop forging? How it is different from machining forging and press forging
  - b) Describe the various defects occurred during forging? (2x5)

**UNIT – II**

- V.
  - a) Explain the continuous casting process and give its applications.
  - b) Explain the process of nucleation and grain growth in metal casting. What is directional solidification? (2x5)

P.T.O.

(2)

- VI. a) Briefly explain the joining processes of soldering, brazing and braze welding. Clearly bring out the differences between them and give specific applications of each type.
- b) Describe the principle of metal transfer in arc welding with the help of neat sketches? (2x5)
- VII. Differentiate between TIG and MIG welding. Discuss the role of inert gases in these processes and draw a comparison between the commonly used inert gases. (10)

x-x-x