



Q.P. Code : 555100

(3 Hours)

[Total Marks : 80

- N.B. :** (1) Question no. **1** is **compulsory**.
(2) Attempt any **three** questions out of remaining **five** questions
(3) Figures to right indicate full marks
(4) Assume suitable data if necessary

1. Write short note on any **four** of the following 20
- (a) Transfer molding process.
 - (b) friction welding
 - (c) CO₂ mould casting
 - (d) Extrusion
 - (e) Mechanism of sintering
2. (a) With a neat sketch explain the principle and working of resistance welding process. Also discuss its advantages, limitations, and applications. 8
- (b) Differentiate Welding, soldering and brazing. 6
- (c) Discuss Rotational Molding process with neat sketch. 6
3. (a) Describe the basic steps of powder metallurgy process. Discuss applications, advantages and disadvantages of powder metallurgy. 8
- (b) Describe inspection of castings, 6
- (c) Write short note on microstructure of welds. 6
4. (a) What is NDT. List various methods of NDT. Explain Ultrasonic method of crack detection. 8
- (b) With a neat sketch explain the working principle of plastic injection moulding process. 6
- (c) What is meant by forging? Differentiate between closed die forging and open die forging. 6
5. (a) Define weldability. Differentiate between TIG and MIG welding process. 10
- (b) Describe in detail various rolling defects. 10

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6. (a) A cylindrical riser must be designed for a sand casting mould. Casting itself is a rectangular plate made of steel, with dimensions 7.5 cm X 12.5 cm X 2.0 cm. Previous observations have indicated that the total solidification time (TST) for this casting is 1.6 min. the cylinder for riser will have D/H ratio= 1. Determine the dimensions of riser so that its TST=2.0 min. 8
- (b) Explain vacuum forming process of polymers. 6
- (c) Write short note on application of plastics in industries. 6