



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) CO<sub>2</sub> mould casting
  - (d) Extrusion
  - (e) Mechanism of sintering
  
2. (a) With a neat sketch explain the principle and working of resistance welding 8  
process. Also discuss its advantages, limitations, and applications.  
(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 8  
applications, advantages and disadvantages of powder metallurgy.  
(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 8  
of crack detection.  
(b) With a neat sketch explain the working principle of plastic injection 6  
moulding process.  
(c) What is meant by forging? Differentiate between closed die forging and 6  
open die forging.
  
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