

QP Code : NP-18708

(3 Hours)

[ Total Marks : 80

- N. B. : (1) Question No. 1 is compulsory.  
(2) Attempt any **three** questions out of remaining questions.  
(3) Illustrate your answers with neat sketches.

1. (a) Explain the various casting defects with their causes and remedies. 10  
(b) Explain press forging? Discuss its advantages over hammer forging. 5  
(c) Differentiate soldering and brazing. 5
2. (a) A cylindrical riser is to be designed for a sand casting mould. The size of steel casting, is  $7.5 \text{ cm} \times 12.5 \text{ cm} \times 2 \text{ cm}$ . The previous operation have indicated that the total solidification time for casting is 96 second. The cylindrical riser have  $(d/n) = 1$ . Find the size of riser so that the total solidification time is 120 seconds. 10  
(b) Discuss resistance welding process with its applications. 5  
(c) Differentiate open the forging and closed die forging 5
3. (a) Discuss the various defects in rolled parts. 10  
(b) Discuss riveted joints state their advantages over other joints. 5  
(c) Explain submerged arc welding with its applications. 5
4. (a) Explain the stepwise procedure of powder metallurgy in detail. 10  
(b) Explain the Rotational moulding with its advantages and applications. 5  
(c) Explain die penetrant testing method of NDT. 5
5. (a) Explain the screw type injection moulding with neat sketch. Discuss its advantages, limitations and applications. 10  
(b) What is powder metallurgy? Discuss its advantages, applications and limitations. 5  
(c) Explain with neat sketches different types of flames generated in gas welding? 5
6. Write Short note on (any four) :- 20
  - (i) Pattern materials
  - (ii) Welding defects
  - (iii) Ultrasonic testing
  - (iv)  $\text{CO}_2$  welding
  - (v) Thread Rolling.