

Mechanical/Automobile

QP Code : 30690

(3 Hours)

[Total Marks : 80

- N.B. :** (1) Question No. 1 is compulsory.
(2) Attempt any **three** questions out of the remaining **five** questions.
(3) **Figures to right** indicate **full marks**.

1. Write short notes on (**any four**) 20
 - (a) Characteristics of moulding sand
 - (b) Thread Rolling
 - (c) Blow Moulding
 - (d) Carbon Arc welding
 - (e) Centritugal casting

2. (a) Calculate the size of cylindrical riser with d/h ratio as 1, required to feed a steel slab casting of $30 \times 30 \times 5 \text{ cm}^3$. 10
Assume the volume shrinkage on solidification as 3% for steel and the volume of riser is three times that of the volume of shrinkage.
- (b) Discuss types of flames in gas welding. 5
- (c) Discuss Advantages, Disadvantages and Applications of Adhesive Bonding. 5

3. (a) Discuss in detail Defects in Rolled parts. 10
- (b) Write advantages, applications and limitation of resistance welding. 5
- (c) Write any five welding defects with their causes. 5

4. (a) What is powder metallurgy ? What are the various processes of making powders. Discuss any two methods of making powder with neat sketches. 10
- (b) Explain Magnetic particl inspection (Magnaflux Test) of NDT, with advantages, applications and limitations. 10

5. (a) Compare Thermoplastics and Thermosetting plastics. 5
- (b) Discuss sintering process of powder Metallurgy. 5
- (c) Compare press forging and drop forging. 5
- (c) Explain compression moulding with neat sketch. 5

6. (a) Explain working principle of Ram type injection moulding. 10
- (b) Discuss advantages, limitations and application of NDT method. 5
- (c) Compare HOT working and Cold working 5