

(3 Hours)



[Total Marks : 80

1. Figures to the right indicate full marks.
2. Attempt any four questions including Question No.1 which is compulsory.
3. Illustrate an answers with sketches if required.
4. Assume any suitable data wherever is necessary.

Q.No.1. The component shown in the figure no.1 is to be sand cast. Material of the component is C.I. Assuming suitable data answer the following:

20

- a). Select parting line.
- b). Design and sketch the required pattern and core boxes.
- c). Design the gating system.
- d). Calculate the required size of riser using Modulus method.
- e). Sketch the view of mold showing gating system and riser.

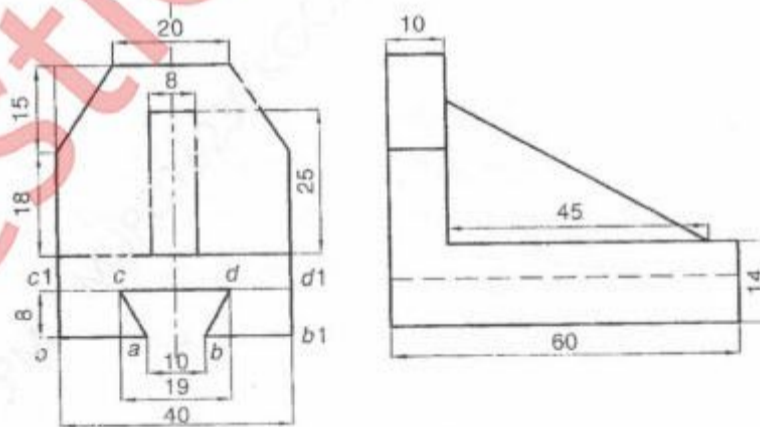


Figure no.1  
All dimensions are in mm.

[Turnover

Q.No.2. Give reasons for the following: 20

- a). Vents are provided in sand mold casting process.
- b). Core sand is superior than mold sand in steel casting process.
- c). Pressurized gating system is suitable for CI-casting.
- d). Roll grooves are tailored and ragged.
- e). Pressure required in forward extrusion is more than that of backward extrusion for same component.

Q.No.3. Differentiate between 20

- a). Core and Core boxes.
- b). Hammers and Presses.
- c). Angle of contact and neutral angle in rolling process.
- d). Forward extrusion and Backward extrusion.
- e). Blind riser and Open riser.

Q.No.4. a). Explain Shell mold casting process in detail. 05  
 b). Explain necessary condition of biting in rolling process. 05  
 c). Explain belt drop hammer in detail. 05  
 d). What are the defects in die cast products one could anticipate? and mention their remedies. 05

Q.No.5. a). Explain Thixo casting process in detail. 05  
 b). Explain classification of rolling process. 05  
 c). How parting line is selected in dies of forging operation? 05  
 d). Why cupola is not suitable for melting of steel? 05

Q.No.6. Write a note on 20

- a). Defects in forged process.
- b). Defects in rolled products.
- c). Rheo casting process.
- d). Different types of core boxes.