

A-1

required.

Section A

Q1. Write short notes on the following: (5x2 = 10)

- a) What is Refractoriness and Bench life of sand?
- b) Enlist three advantages of hot working over cold working process.
- c) What is the difference between pattern and core?
- d) Define ductility and toughness.
- e) Define Swaging and Drifting operation.

Section B

Q2. a) Explain investment casting with diagram. Also write its advantage over other casting processes.

b) Define different zones of cupola furnace with chemical reactions. 5+5

Q3. a) What are the different types of gate used in sand casting process?

b) Write any five bench work and fitting tools with neat sketch. 5+5

Q4. a) Explain with diagram, five casting defects with their possible causes and remedies.

b) What is the difference between press forging and drop forging? 5+5

Answer the questions in each unit.

- Q1. Answer questions: (5x5=25)
- Describe Properties of materials: strength, elasticity, stiffness, malleability and hardness.
 - Explain in brief all the elements of gating system.
 - Compare Hot working and Cold working process.
 - Describe any five welding defects with proper nomenclature.
 - Compare TIG and MIG welding in detail. What are their applications?
 - Elaborate on any five fitting shop tools with proper diagrams.

Unit-I

- Q2. a) What are Carbon steels? How they are classified based on % of carbon? Describe their properties & applications. (8)
- b) Elaborate on composition and properties of moulding sand. (4.5)
- Q3. a) What are permanent mould casting & centrifugal casting? Compare. (4.5)
- b) What is Pattern? What are pattern materials? Explain all types of patterns in brief. (8)

Unit-II A 3

- Q4. Explain **any four** in brief: (12.5)
- Forging defects,
 - Drop forging
 - Press forging
 - Bench work and fitting operations
 - Extrusion & its types
 - Wire drawing & swaging

Unit-III

- Q5. a) Explain Oxyacetylene Gas welding, its equipment and field of application? (6)
- b) Compare Brazing and soldering? How they are used in modern manufacturing process? (6.5)
- Q6. a) Describe butt and percussion welding? Draw suitable diagram to elaborate. Also give its some applications. (6)
- b) Discuss Flux, its composition, properties and function? Elaborate in brief. (6.5)

Unit-IV

- Q7. What is Powder metallurgy? Explain its all process: powder production blending, compaction, sintering. (12.5)
- Q8. a) Explain types of sheet metal operations: shearing, drawing and bending. (8)
- b) Compare embossing and coining with suitable diagram & applications. (4.5)

P