

Manufacturing Processes - I

P. Pages : 2

NKT/KS/17/7230/7254

Time : Three Hours



Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.
 9. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) State the factors which govern the selection of proper material for pattern making and discuss the advantages and disadvantages of selecting the wood and metal as pattern making materials. **7**

b) Explain how grain size and shape affect the permeability and strength of moulding sand. **6**

OR

2. a) What is a pattern? Explain with neat sketches the following patterns. **5**

- i) Sweep Pattern
- ii) Gated Pattern
- iii) Skeleton Pattern
- iv) Follow Board Pattern

b) Explain shell moulding process. **5**

c) What are the various characteristics of good moulding sand? **3**

3. a) What are the requirements of an ideal gating system? Explain with neat sketches the different gates used in mould making. **6**

b) Explain the method of 'cold chamber' Die Casting with neat sketch. How does it differ from 'Hot Chamber' die casting? **7**

OR

4. a) Name different types of electric furnaces used in founding applications, Describe the working of direct arc electric furnace along with its advantages and disadvantages. **6**

b) What are misrun and cold shut casting defects. Discuss causes and remedies for these defects. **7**

5. a) Define weldability. Explain with the help of neat sketch, thermit welding process. **7**

b) Explain in detail, with neat sketch TIG welding. Also explain how it differs from MIG. **7**

OR

6. a) What is Gas Cutting? Discuss terms 'Kerf' and 'Drag' with reference to gas cutting with neat sketch. 7
- b) What is resistance welding? Explain with neat sketches the following resistance welding processes : 7
- i) Spot Welding and
 - ii) Seam Welding

7. a) What is Rolling Process? Also differentiate between 'Hot Rolling' and 'Cold Rolling'. 6
- b) Explain Forging process alongwith its advantages and drawbacks. Also differentiate between open die forging and close die forging. 7

OR

8. a) Describe briefly 'Cluster Mill', 'Continuous Mill' and 'Planetary Mill'. 6
- b) Explain with the help of neat sketch direct extrusion process. Discuss merits and demerits of direct and indirect extrusion process. 7

9. a) What are the different ways in which presses are classified? Explain with neat sketches the classification done on the basis of design of frame. 7

- b) Explain the following press operations : 6
- i) Shearing
 - ii) Slitting
 - iii) Cupping
 - iv) Planishing

OR

10. a) Using 'Fly Press' sketch explain 'Press Terminology' and its various elements. 7

- b) Name the various types of dies. Draw and explain in detail 'Compound Die'. 6

11. a) What are plastics? Explain the term 'Polymerization'. Differentiate thermosetting plastic and thermoplastics. 7

- b) Explain the process of injection moulding with neat sketch, giving its advantages, state its application. 7

OR

12. a) Explain various joining methods of plastics. Write in detail about Hot Gas welding and Hot Plate Welding. 7

- b) Write short notes on : 7
- i) Role of additives in plastic moulding.
 - ii) Calendering.
 - iii) Transfer Moulding.
