



- 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. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain the various features and working principles of a typical material handling system. **7**
- b) Discuss the various objectives and benefits of proper material handling. **6**

OR

2. a) Explain the role of plant Layout in relation to material handling system. **7**
- b) Explain the classification of material handling equipment in brief. **6**
3. a) State and explain the factors affecting the selection of material handling equipment. **7**
- b) Discuss economic analysis for designing the component of material handling system. **7**

OR

4. a) Explain the parameters affecting servicing, packing and storage of material. **7**
- b) What is a unit Load? Describe Various unit load systems. **7**
5. a) Explain the various design consideration for structures. of hoisting mechanism. **7**
- b) Describe in brief rail travelling components and mechanisms. **7**

OR

6. a) Explain the types of Bridge crane in brief. **7**
- b) Explain the design considerations for structure of stationary rotary crane. **7**
7. a) Explain the forged hooks in load lifting attachments? **7**
- b) Discuss the design parameters for design of a Grab bucket. **6**

OR

8. a) Explain in brief the working of Bucket elevators. 7
b) Explain a Ramshorn hook with its salient features. 6
9. a) Explain the importance of material storage equipment. 7
b) Describe the working of cabinet conveyors. 6

OR

10. a) Discuss the principle and working of screw conveyor. 7
b) Describe the utility of mobile racks in industries. 6
11. a) What is computerized warehouse planning explain in brief. 7
b) Describe the various factors affecting the warehouse automation. 6
12. a) Explain the safety precautions in material handling and warehouse automation. 7
b) Explain the levels and means of mechanization in material handling. 6

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