

CS/B.Tech(ME)/Even/6th Sem/ME-605A/2014

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2014

**Materials Handling****Time Alloted : 3 Hours****Full Marks : 70***The figure in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable***GROUP - A****( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any ten of following: 10x1=10

- i) Pulverised coal can be transferred by which of the following conveyor?  
 a) Belt conveyor      b) Pipe line  
 c) Roller conveyor    d) None of these
- ii) Major characteristics of bulk materials  
 a) Lump size      b) Bulk weight  
 c) Angle of repose    d) All of the above
- iii) B27M coded bulk material, which property is missing  
 a) Lump size      b) Bulk Density  
 c) Flowability      d) Abrasiveness
- iv) Stoppage of mobile equipment should be  
 a) Minimum      b) Maximum  
 c) Moderate      d) None of the above

- v) Self contained unit load  
 a) Pallet      b) skid  
 c) container    d) Bale
- vi) BIS standard for expandable pallets  
 a) IS 7276:1989      b) IS 9340:1993  
 c) IS 11982:1987      d) IS 13823:1993
- vii) Which one of the following technologies is used only for material handling, not actual production or assembly?  
 a) Robots      b) CNC  
 c) AGV      d) None of these
- viii) Materials which do not deteriorate on crushing can be used with  
 a) Chamber feeder      b) Screw feeder  
 c) Oscillating Feeders    d) None of the above
- ix) Blow tank is also known as  
 a) Screw feeder      b) Tank feeder  
 c) Chamber feeder    d) None of the above
- x) Stranded steel wire ropes are  
 a) Having one strand only  
 b) Of multi-strands  
 c) A bunch of steel wires  
 d) Locked coil ropes
- xi) Inner face of crane hooks are having  
 a) Larger cross section    b) Lesser stress  
 c) Zero load      d) Locking device
- xii) Slewing operation of crane is  
 a) For hoisting of load    b) A circular motion  
 c) Luffing movement    d) All of the above

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GROUP - B

**(Short Answer Type Questions)**

**Answer any three of the following                   $3 \times 5 = 15$**

2. What do you mean by Hoist? Write down the specification and uses of hoist. (1+4=5)
  3. Define the Unit load. Write down the major advantages of unitization and handling of unit loads. (1+4=5)
  4. Why power feeders are required to handling the bulk materials?  
Define Disk Feeder. (1+4=5)
  5. Write down the different types of Pneumatic conveyor and its advantages. (5)
  6. Briefly explain the FLT attachments. (5)

GROUP - B

**(Short Answer Type Questions)**

**Answer any three of the following**

7. Write down five Principles of materials handling. (3x5=15)

8. What is system concept? What are the limitations of FLT? With a schematic diagram show major parts of FLT. What do you understand by capacity rating of FLT? (3+3+5+4=15)

9. Explain briefly major components of a robot. With net sketch classify robotic manipulators (6+9=15)

10. Write down the major points in selection and design of a belt conveyor. Determine required expression for belt width & belt tension. Why selection of idlers and its spacing is important in case of belt conveyor. (3+10+2=15)

11.a) What is an AGV? Classify and describe main navigation techniques followed.

b) Describe the constructional details of EOT cranes. (2+2+4=7)