

M.Tech. Mechanical Engineering Design (CBCS) Semester-II
MED24(C) - Design of Mechanical Handling System

P. Pages : 1

Time : Three Hours



GUG/S/25/14198

Max. Marks : 70

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- Notes :
1. All questions carry equal marks/marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Answer **any five** question.

1. What are the important technical factors that should be considered in the choice of material handling equipment? Briefly discuss any four factors. **14**
2. a) List the types of haulage conveyors. Explain anyone in detail. **7**
b) Explain the importance of material storage equipment. **7**
3. a) List down any four types of powered trucks and their uses. **7**
b) Discuss the operating principles of powered industrial trucks **7**
4. a) Illustrate the limitations of a belt conveyor system. **7**
b) What are the specifications of screw conveyors? **7**
5. a) Discuss in detail the Components of a Cable Conveyor. **7**
b) What are the major Components of Chain Conveyor? **7**
6. Elaborate power requirement calculation of belt. **14**
7. Describe the basic principles of operation of positive pressure system of low pressure pneumatic conveying. If necessary give figures to enumerate this. **14**
8. A horizontal belt conveyor with 3-roller troughing arrangement handles coal at the rate of 150 t/hr. at a speed of 2.5 m/sec. The side troughing idlers are set at an angle of 15° with respect to the axis of the central idler. If the bulk weight of the material is 0.8 t/m^3 and static angle of repose of the load is 45° , then find out the width of the belt. Deduce the expression that you use in solving the problem with necessary assumptions. **14**
