



Name :

Roll No. :

Invigilator's Signature :

**CS/M.Tech(ME)/SEM-2/MME-203/2013
2013**

MATERIALS HANDLING SYSTEM

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

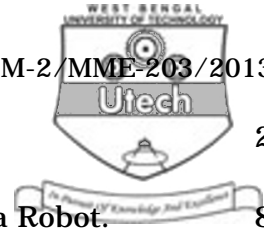
*Candidates are required to give their answers in their own words
as far as practicable.*

Answer any *five* questions. $5 \times 14 = 70$

1. a) Define Materials Handling. 2
- b) Mention 5 essential requirements of a good Materials Handling system. 5
- c) Mention 3 functional scopes of MH in an Industry. 3
- d) What are the symptoms which determine the need of a good MH system ? 4
2. a) How to classify and codify bulk materials as specified under IS + 8730 : 1997 ? Discuss. 7
- b) Mention and briefly discuss any 7 principles followed in materials handling. 7



3. a) Define and illustrate the concept of Unit Load. 4
- b) Mention and briefly discuss 5 advantages of Unit Load. 5
- c) Mention and briefly discuss 5 disadvantages of Unit Load. 5
4. a) Mention 5 basic types of MH equipment. 5
- b) Briefly discuss and elaborate any 3 (of above) basic types. 9
5. Mention 7 important specifications of a Fork Lift Truck (FLT) and discuss briefly.
6. a) Rated capacity of a FLT is 2000 kg at the Load Centre of 450 mm. The distance between the centre of the front wheels and the heel of the forks is 350 mm. What is the true capacity of the FLT (mention its unit too). 4
- b) With a neat sketch of the plan view of a FLT, elaborate on Turning radius and calculate the minimum Aisle Width for a FLT to move freely through the aisle. 10
7. a) Mention and discuss 5 types of Belt Conveyors. 10
- b) Mention 4 aspects of Belt Conveyor Design. 4



8. a) Define a Robot. 2
- b) Elaborate on 2 major components of a Robot. 8
- c) Explain, with the help of a neat hand-sketch, Cartesian Co-ordinate Robot. 4
9. a) What do you understand by Auxiliary MH Equipment ? Discuss. 4
- b) Briefly discuss the use and working principles of any 5 of the following : 5 × 2
- i) Gates
 - ii) Feeders
 - iii) Chutes
 - iv) Positioners
 - v) Ball Table
 - vi) Weighing and control equipment
 - vii) Pallet loaders and unloaders.

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