



Name :

Roll No. :

Invigilator's Signature :

**CS/MBA(NEW)/SEM-4/PLM-402/2010
2010**

CARGO HANDLING SYSTEMS MANAGEMENT

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.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :
10 × 1 = 10
- i) Union purchase system is an effective handling system of break bulk cargo weighing between
 - a) 1 to 2 tons
 - b) 2 to 3 tons
 - c) 3 to 5 tons.

 - ii) Level luffing crane can pick up a load from any point in the hatch and deposit anywhere in the quay, because it
 - a) rests on wheels on the quay and are usually tracked along the length of the quay
 - b) rests on wheels and crane jib can slew and luff
 - c) rests on wheels and has higher Safe Working Load (SWL).



- iii) A gantry crane is usually associated with
 - a) bulk handling of raw materials
 - b) container handling
 - c) both (a) and (b).
- iv) Endless rope sling is used for
 - a) lifting containers
 - b) lifting wooden cases
 - c) lifting drums.
- v) A chain sling consists of a length of chain with
 - a) a ring on one end and a hook on the other
 - b) a link on each end
 - c) either of these.
- vi) Pallets for cargo handling are either
 - a) wooden platform or trays
 - b) wooden slopes or stairs
 - c) wooden steps or railings.
- vii) Containers are metal boxes measuring
 - a) 8 ft \times 8 ft \times 20 ft
 - b) 8 ft \times 8 ft \times 40 ft
 - c) both (a) and (b).
- viii) LASH (Lighter Aboard Ship) ships have a capacity of
 - a) 40,000 dwt and 70 barges of appx 400 tons cargo capacity each
 - b) 44,000 dwt and 73 barges of appx 400 tons cargo capacity each
 - c) 50,000 dwt and 75 barges of appx 400 tons cargo capacity each.



- ix) A radial loader has a bulk loading capacity of in excess of
- a) 5,000 tons/hour
 - b) 10,000 tons/hour
 - c) 20,000 tons/hour.
- x) Modern grab type unloaders have a cycle time of between
- a) 30 to 45 secs.
 - b) 45 to 60 secs.
 - c) 60 to 90 secs.
- xi) The forklift truck lifting capacity varies from
- a) 1000 kg to 3000 kg
 - b) 1000 kg to 5000 kg
 - c) 1000 kg to 12000 kg.
- xii) "Ramped stillages" are used to
- a) demount containers to a trailer
 - b) load containers in a hold
 - c) both (a) and (b).

GROUP – B

(Short Answer Type Questions)

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

2. What are different conventional break bulk handling systems used in a port ? Highlight their features.
3. What are LASH (Lighter Aboard Ship) Ships ? Explain in brief their features and advantages.
4. What is lighterage system of cargo handling in a port ? Why is this preferred in some ports ?

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5. What are different unloading systems for bulk cargo in a port ? Specify their features and advantages ?
6. What is the basic principle of container storage ? What methods are employed in loading a container properly ?
7. What is meant by stowage factor ? What is broken stowage ? Which cargo will occupy more space having less SF or more SF ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

8. What are main purposes of a Fork-lift truck in a port ? Enumerate and briefly explain the common types of Fork-lift trucks used in a port ?
9. What are the major influencing factors which determine the type of cargo handling equipment in a port ? Briefly explain highlighting their influence.
10. “Turn around time” is a major factor today for sustainability of a port. For break bulk cargo, briefly explain the different methodology that can be adopted by a port to improve cargo flow.
11. Explain in brief different unloading systems as used in export berth for bulk cargo. What special care needed during operation of these unloaders ?
12. Briefly explain with respect to container handling equipment :
 - a) Self-dismounting pallets
 - b) Self-loading trailers
 - c) Mobile lift frames.