

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)  
**END SEMESTER EXAMINATIONS –JUNE 2019**  
**B.Sc (Nautical Science)**  
Semester-III  
**Cargo Handling and Stowage Paper- I**  
**UG21T3305**

**Date:17-07-2019**

**Time: 3Hrs**

**Maximum Marks: 70**

**Pass Marks: 35**

**Note: Question No. 1 is compulsory.**

**Answer any 6 questions from remaining 8 questions (each of 10 marks).**

**Scientific Calculator is permitted if required.**

Q.1. Define or Write short notes on the following. (2 x 5 =10 marks)

- (a) Union Purchase System of Derricks.
- (b) Parts of a Deck Crane
- (c) Frictional Forces on a Block and Tackle. Give examples.
- (d) Chain Register.
- (e) Weather tightness of Hatch Covers.

Q2. (a) Sketch a simple derrick and label the parts. Explain the functions of each part of the simple Derrick. (5 marks)

(b) What are the main advantages of cranes as compared to Derricks. (5 marks)

Q3. (a) Write short notes on the following

1. Bale Capacity and Grain capacity
2. Stowage factor (SF) and Broken Stowage (BS). What is high density cargo as per IMO standards. (5 marks)

(b) GIVEN SIZE OF COMPT= 10X8X6m.

- SF of Cargo= 4cbm/t :
- Calculate weight of cargo that can be loaded.
- The BS = 10% then calculate weight of cargo that can be loaded. (5 marks)

Q4. (a) Explain the rigging of a purchase to advantage and to disadvantage. (5 marks)

(b) Two three fold purchase are used to lift a life boat weighing 7500 kg. Frictional loss is 1% of the load per sheave. Calculate the SWL of wire required to lift the boat. (5 marks)

Q5. (a) Write down contents of Cargo Securing Manual. (5 marks)

(b) List down 5 types of container lashing materials. (2+3 marks)

- Q6. (a) Explain Ship Sweat and Cargo Sweat. (5 marks)  
(b) Procedure to control above sweats by ventilation. (5 marks)
- Q7. (a) Write notes on Safe working load, Breaking stress , and Proof load. (2+2+1 marks)  
(b) What is permissible load density. Explain with an example. (5 marks)
- Q8. (a) Enumerate the different types of Hatch covers commonly in use. (5 marks)  
(b) In designing a Hatch cover give 5 important key parts (5 marks)
- Q.9. (a) Name a physical stowage plan for a general cargo Ship having 5 holds with Port rotation for discharge on  
a.Kandla  
b.Kochi  
c.Kolkata and  
Cargo a.wood pulp for Kolkata  
b. Heavy Lift for Kandla  
c.Steel coil for Kochi  
Comply Port rotation for discharge as a,b,c in priority and all the cargo equally loaded in all the 5 holds.

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