

# INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

End Semester Examination Dec 2019/Jan 2020

B.Sc. (Nautical Science)

Semester -III

UG21T3305- Cargo Handling and Stowage Paper- I

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Date: 18.12.2019

Max Marks: 70

Time: 3 Hours

Pass Marks: 35

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

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

**Scientific Calculator is permitted if required.**

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- Q1 Define/Explain the following: (5x2 = 10 marks)
- (a) Broken Stowage
  - (b) Safe Working Load
  - (c) Chain Register
  - (d) Deadweight
  - (e) Trimming of cargo
- Q2. (a) What are the main advantages of Crane as compared to Derricks? (5 marks)
- (b) What are the Operational checks to be done on ship's crane before handing over to stevedores? (5 marks)
- Q3. (a) What are the duties of officer on cargo watch, alongside berth, in port? (5 marks)
- (b) Explain the procedure of inspection of cargo holds. (5 marks)
- Q4. (a) Explain briefly the care and maintenance of wire ropes. (5 marks)
- (b) With the help of neat diagram show the markings on shackles. (5 marks)
- Q5. (a) Explain the contents of cargo securing manual. (5 marks)
- (b) Describe types of segregation of dangerous goods on General Cargo ship. (5 marks)
- Q6. (a) Explain ship sweat and cargo sweat. (5 marks)
- (b) Why is cargo ventilation important on ships? Explain. (5 marks)
- Q7. (a) A cargo hold of dimensions 9m \* 6m\*4m is to be filled with steel pipes (SF=1.05 m<sup>3</sup>/t) and paint drums (SF=1.90 m<sup>3</sup>/t). If the load density of tank top is 3.00 t/m<sup>3</sup>, up to what height should the steel be loaded so that the hold is filled without exceeding the load density? How many tonnes of steel pipes and paint drums can be loaded? (5 marks)
- (b) Using a threefold purchase rigged to disadvantage, for lifting a weight of 9.6 tonnes, find: -
- 1. Tension in the hauling part.
  - 2. The efficiency of the system.
- (Assume friction to be 8% of the load per sheave) (5 marks)
- Q8. (a) List different methods of testing weather tightness of hatch covers and explain any one. (5 marks)
- (b) Explain the precautions to be taken while operating hatch covers. (5 marks)
- Q9. (a) What is Stowage plan? List the advantages of considering Port Rotation in stowage plan. (5 marks)
- (b) Describe factors affecting stowage plan. (5 marks)