

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2023
Programme Name: B Sc (NS)
Semester: III
Subject Code: UG21T5305
Subject Name: Cargo Handling & Stowage 1

Date: 13.12.2023

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.
- (iii) Scientific Calculator is permitted.

Section A

Choose the correct answer,

1. Which of the below choices given is not a Dry cargo ship:

- A) Bulk Carrier
- B) Container Ship
- C) LNG Ship
- D) Ro-Ro Ship

2. The unit of Load Density is :

- A) M^3/T B) T/M^3 C) M^2/T D) T/M^2

3. Cargo with Stowage factor of 0.56 will be a _____ cargo.

- A) Light B) Very Light C) Heavy D) None of the above.

4. Proof load of Chains, rings, hooks, shackles, swivels $\leq 25t$ is:

- A) 4 X SWL
- B) 2 X SWL
- C) 1.5 X SWL.
- D) None of the above

5. Breaking Strength of Manila rope is.

- A) $2D^2/300$
- B) $3D^2/300$
- C) $4D^2/300$

D) $5D^2/300$

6. The factors on which sweat formation depends are:-

- A) Humidity
- B) Dew Point
- C) Cargo Temperature
- D) All of the above.

7. Mechanical Advantage is the ratio of:

- A) Effort/Load
- B) Applied Force/Resistance
- C) Load/Effort
- D) None of the above.

8. A Watch/Luff tackle has ____ number of sheaves.

- A) 3
- B) 4
- C) 6
- D) 1

9. During un-loading of a bulk carrier or a General cargo ship, the mooring lines will become _____. Select the best option.

- A) Taut
- B) No change
- C) Slack
- D) None of the above.

10. How many tonnes of bicycles (SF 3.10) will fit in a hold of length 12.5m, breadth 9m and depth 6.3m ?

- A) 363.46 t
- B) 228.63 t
- C) 1476.56 t
- D) None of the Above.

Section B

Answer all questions. (2 x 5 = 10 marks)

11. List markings on the shackle.
12. Describe Load Density.
13. What is Ballasting and De-ballasting?
14. Difference between ullage and sounding
15. Define Broken stowage. How this is used in cargo work calculation?

Section C

Answer five out of seven questions. (10 Marks Each)

16. A Cargo Hold 22x15x12m of bale capacity 3900m³ and load density 5/tm² is to be filled so as to maximize the freight earning. The cargo available is

| | SF | Freight |
|---------------|------|--------------------------|
| Steel billets | 0.70 | \$70/-per ton |
| Cotton bales | 2.80 | \$50/-per m ³ |

How much of each cargo will you load and what is the Freight earned?

17. Explain what all visual inspections to be carried out on ships cargo gear before handing it over to the stevedores?
18. Briefly describe how ship sweat and cargo sweat are caused. How do you ventilate them in order to prevent cargo damage?
19. a) How are following tests carried out on the crane? (5 Marks)
- i) Static
 - ii) Dynamic
- b) Write short notes on the care and maintenance of Natural Fibre rope. (5 Marks)
20. a) Write short notes on the principles of cargo stowage. (5 marks)
- b) How do you test the weather tightness of the Hatch Cover? (Marks(5))
21. What is Chain Register? State its contents.
22. If 6 tonnes weight is to be lifted using a gyn-tackle to advantage.
- Calculate:
- a) The effort required.
 - b) The efficiency of the system.
 - c) The minimum size of polypropylene rope to be used.
- **Assume friction to be 10% of the load per sheave.

