

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

Date: 13.06.2023

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 most correct answer.(1x10=10marks)

1. Which of the below choices given is correctly arranged:

- a) breaking Stress(BS)<Proof Load(PL)<Safe Working Load(SWL)
- b) SWL<PL<BS
- c) PL<BS<SWL
- d) PL<SWL<BS

2. The unit of Stowage factor is :

- a) M³/T
- b) T/M³
- c) M²/T
- d) None of the above.

3. A purchase is said to be used to advantage:-

- a) When the load moves in the opposite direction of the effort
- b) By counting the number of moving and fixed blocks in the purchase
- c) When the load moves in the same direction of the effort
- d) By counting the number of sheaves in the purchase

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4. During loading of a bulk carrier, the mooring lines will become _____. Select the best option.

- a) Taut
- b) No change
- c) Slack
- d) None of the above.

5. How would you ventilate your cargo holds when sailing from cold climate to hot climate?

- a) No ventilation should be done
- b) Ventilate excessively
- c) Ventilate only during night time
- d) Ventilate only during day time

6. The crane cut off limit switch can be bypassed in some cases in order

- a) To speed up the cargo operation to satisfy the charterers
- b) To discharge the cargo from the sides where the crane does not reach in normal operation
- c) For lifting the hatch pontoon when the pontoon is fallen off the track
- d) None of the above

7. How much space would 300 tonnes of tea with stowage factor of 3.0 take up, if it had a broken stowage of 10%

- a) 330 cubic metres
- b) 990 cubic metres
- c) 90 cubic metres
- d) 3330 cubic metres

8. What is the check that you would carry out for checking watertight integrity of a hatch cover .

- a) Check gasket condition
- b) Look upwards from inside the cargo hold for signs of light
- c) Carry out hose-test and check for leaks
- d) All of the above

9. A gun tackle has ____ number of sheaves.

- a) 2
- b) 4

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20.State at least 10 different entries to be made in Log book. (10 Marks)

21.What are the care and maintenance of fibre and synthetic ropes on board? (10 Marks)

22.a)Describe different types of hatch covers. (5 Marks)

b)State the maintenance required for hatch covers. (5 Marks)

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- c)6
- d)1

10. Points to be considered while preparing a cargo plan?

- a) Port rotation
- b) Dimension/capacities of cargo space, stowage factor/dimensions of cargo
- c) Stability of the vessel
- d) All the above

Section B

Five Questions of 02 Marks each. SHORT ANSWER TYPE QUESTIONS

- 11. What is "grain capacity"?
- 12. What are the two most common leak detection test of hatch covers
- 13. State 4 most important factors to be considered while making a stowage plan ?
- 14. When do you say that a purchase is used to advantage and when do you say that a purchase is used to disadvantage?
- 15. What is the purpose of compression bars on the hatch coaming?

Section C

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

16.

In the following problems unless mentioned otherwise, use a value of 10% of the load, per sheave for friction and a factor of safety of 6 for ropes and wire. Using a three fold purchase rigged to disadvantage, to lift a weight of 9.6 tonnes, find:

- i) the tension in the hauling part
- ii) The efficiency of the system
- iii) The minimum size of manila rope that can safely be used in the purchase. (10marks)

17. Explain what all visual inspections to be carried out on ships cargo gear before handing it over to the stevedores? (10 Marks)

18. What are the different types of segregations you observe while loading dangerous cargo in package form? (10 Marks)

19. Briefly describe how are ship sweat and cargo sweat are caused? How do you control the sweat in order to prevent cargo damage? (10 Marks)

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