

Indian Maritime University
(A Central University, Govt. of India)
End Semester Examinations – December 2023
Programme Name: DNS
Semester: II
Subject Code: (UD11T5205)
Subject Name: MARPOL & MARINE ENGINEERING KNOWLEDGE

Date: 15.12.2023
Time: 3 Hours

Max. Marks: 70
Pass Marks: 35

General Instructions

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

Section A

Fill in the banks:

(1 x 10 = 10 Marks)

1. SOPEP stands for _____.
2. Annex II of the MARPOL is "International regulations for the _____ of pollution by noxious liquid substances in bulk".
3. An _____ certificate is issued, after survey in accordance with the provisions of regulation in MARPOL Annex IV
4. Inside an evaporation type fresh water generator, water is made to boil at temperature less than 100°C due to _____ in shell.
5. The rate of discharge of oil in liters per hour at any instant divided by the speed of the ship in knots at the same instant is known as _____.

Multiple Choice Questions:

6. Where are sea water pumps in an engine room located?
 - a. Bottom platform
 - b. Top platform
 - c. Middle platform
 - d. Tank top
7. Which type of marine pump is commonly used for removing bilge water from the lower compartments of a ship?
 - a. Centrifugal pump
 - b. Reciprocating pump
 - c. Gear pump
 - d. Diaphragm pump
8. The underlying principle behind a hydraulic system is based on _____ law.
 - a. Newton's
 - b. Stokes
 - c. Pascal's
 - d. Daltons
9. Instantaneous rate of discharge allowed for cargo space discharge criteria on oil tankers is
 - a. 30 L/NM
 - b. Less than 30 L/NM
 - c. Not exceeding 30 L/NM
 - d. More than 30 L/NM
10. ORB Part-1 is required on following ships
 - a. Oil Tanker more than 150 GRT
 - b. Other ships \geq 400 GRT

- c. Oil tanker less than 150 GRT
- d. Other ships more than 400 GRT.

Section B

Short answer type questions

(2 x 5= 10 Marks)

- 11. Define Sewage.
- 12. Define 'from the Nearest Land'.
- 13. Define scavenging.
- 14. Define Clean Ballast as per Annex-1.
- 15. List the equipment's carried in SOPEP?

Section C

Answer five out of seven questions.

- 16. **(5 x 2 = 10 Marks)**
 - a. State the conditions under which Oily Mixtures may be discharged into the sea from the cargo spaces of an Oil Tanker.
 - b. Explain MARPOL 73/78.
- 17. **(5 x 2 = 10 Marks)**
 - a. What is Garbage Management plan?
 - b. Draw a neat-labeled diagram of a gate valve.
- 18. **(5 x 2 = 10 Marks)**
 - a. Explain the requirements of Marking and Labeling Packages in MARPOL Annex III.
 - b. What are sources of Sox & Nox emissions
- 19. **(5 x 2 = 10 Marks)**
 - a. State conditions under which sewage can be discharged into sea.
 - b. Compare Centrifugal and Positive Displacement pumps with respect to capacity, suction and discharge pressures and usage.
- 20. List the entries required with respect to Oil Tankers In Oil Record Book Part I. **(10 Marks)**
- 21. Draw a neat & labeled sketch of a 2-ram steering gear. **(10 Marks)**
- 22. **(5 x 2 = 10 Marks)**
 - a. What is Procedure & Arrangement Manual?
 - b. State the discharge criteria for categories X, Y, Z & OS in Special area.
