

**Indian Maritime University**

**(A Central University, Govt of India)**

**End Semester Examinations – December 2024**

**Programme Name: Diploma in Nautical Science**

**Semester: II**

**Subject Code: UD11T5205**

**Subject Name: MARPOL & MARINE ENGINEERING KNOWLEDGE**

Date: 20.12.2024

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

1. Section A and B is Mandatory.
2. Section C - Answer any 5 Questions from remaining 7 Questions (each of 10 marks)
3. Sketches drawn as required, should be neat and labelled.

**Section A**

Ten MCQs/Fill in the Blanks of 01 Mark each

(01 x 10 = 10 Marks)

1. Under the MARPOL Annex VI, the global Sulphur limit at present is \_\_\_\_%.
2. Detailed requirements of Annex III can be found in the \_\_\_\_\_ code
3. When outside special area comminuted food waste may be disposed at sea at distance more than \_\_\_\_\_ miles away from the nearest land.
4. As per MARPOL Annex II Noxious liquid substances Category Y presents a ----- to marine environment.
5. The OWS discharges the bilge water with oil content not more than ----- ppm.
6. ODMCS stands for
  - a. Oil discharge and maintaining system
  - b. Oil disposal and monitoring system
  - c. Oil discharge monitoring and control system
  - d. Oil discharge maintenance a control system
7. Harmful substances are the ones identified as 'Marine Pollutants'
  - a. As per MARPOL Annex 3
  - b. As per IMDG Code
  - c. As per IBC code
  - d. None
8. What are required to be used as remotely operated shut off valves to safeguard against serious hazards due to oil leakage, spills or fire.
  - a. Quick closing valves
  - b. Swing check valves
  - b. Gate valves
  - d. Ball valves
9. If the propulsion engine is non-reversible then how many air starts are required, as per regulations?
  - a. 12
  - b. 6
  - c.10
  - d.14
10. The refrigerant coming out of the condenser should be in \_\_\_\_\_ form?
  - a. Liquid
  - b. Gaseous
  - c. Mixture of liquid and gas
  - d. Not specific requirement



## Section B

Short questions

(5 x 2 = 10 Marks)

11. State the comparison between main Engine and Auxiliary Engine
12. List the entries to be made in Oil Record book part 2.
13. State the various categories of garbage generated on the ship.
14. Give requirements for Slop Tanks on oil tankers?
15. State Pascal's Law and Bernoulli's Principle

## Section C

Seven Questions of 10 Marks each of which any 05 questions to be answered.

16. (2 x 5 = 10 Marks)
  - a) With the help of neat and cleaned labelled diagram, explain the working of an Air compressor.
  - b) List the various uses of steam on board the ship.
17. (2 x 5 = 10 Marks)
  - a) Explain the operation of Fresh Water Generator.
  - b) Describe construction and working of an Oily water separator?
18. (2 x 5 = 10 Marks)
  - a) Explain the Working of 4-stroke engine.
  - b) Draw a neat and cleaned labelled working diagram of 4-stroke engine.
19. (2 x 5 = 10 Marks)
  - a) State the disposal requirements for expired medicines, expired Pyrotechnics, batteries and tube lights.
  - b) Explain the components of Evaporator Type Fresh Water Generator.
20. (2 x 5 = 10 Marks)
  - a) With the help of neat and cleaned labelled diagram, explain the operation Globe valve.
  - b) Define sewage and give discharge criteria from passenger ships outside special area?
21. (2 x 5 = 10 Marks)
  - a) Sketch & label the propulsion shafting system.
  - b) Draw and label the 2-ram steering gear system, with its components.
22. State the categories of Noxious liquid substances carried in bulk and the conditions of their discharge. (10 Marks)

