Indian Maritime University

(A Central University, Govt of India)

Supplementary Examinations – September/October 2024

Programme Name: B Tech (ME)

Semester: IV

Subject Code: UG11T4404

Subject Name: Marine Pollution Prevention and Safety

Date: 05.10.2024	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.

Section A

Choose the correct answer as applicable. [10 x 1 = 10 marks]

(1) Administration surveyors, when checking their own registered ships for compliance of international regulations such as MARPOL / SOLAS, it is called -
(A) FSI (Flag State Inspection) (B) PSI (Port State Inspection)
(C) Annual Survey (D) Intermediate Survey

(2) Which certificate under MARPOL has no Annual or Intermediate inspections?
(A) International Oil Pollution Prevention Certificate
(B) International Sewage Pollution Prevention Certificate
(C) International Air Pollution Prevention Certificate
(D) None of the above three.

(3) Fuel oil sludge from purifiers when incinerated onboard to be recorded in -
(A) Oil Record Book No. I (B) Oil Record Rook No. II
(C) Ballast Water Record Book (D) Cargo Record Book

(4) Incinerator ashes when discharge to port reception facility to be recorded in
(A) Oil Record Book No. I (B) Oil Record Rook No. II
(C) Garbage Record Book No. I (D) Garbage Record Book No. II

(5) Marine Pollutant cargo- labelled with its United Nation (UN) Number that is
(A) Three-digit number (B) Four-digit number
(C) Six-digit number (D) Eight-digit number

(6) Special Permit as required under London Dumping Convention is issued by -
(A) Designated Authority at IMO (B) Designated Person Ashore (DPA)
(C) Designated National Authority (D) Port Start Control (PSC) Authority.

(7) Marine incinerator combustion chamber operative temperature is between -
(A) 300°C and 400°C. (B) 400°C and 600°C.
(C) 850°C and 1200°C. (D) 950°C and 1500°C.

(8) Ships are now annually graded in A (Superior), B, C, D, E (inferior) under
(A) Energy Efficiency Existing Ship Index (EEXI)
(B) Energy Efficiency Design Index (EEDI)
(C) Carbon Intensity Indication (CII)
(D) International Energy Efficiency Certificate (IEEC)

(9) USA enacted Oil Pollution Act (OPA)1990 as a substitute of IMO Convention
(A) MARPOL Convention
(B) London Dumping Convention (LDC)
(C) Civil Liability Convention (CLC)
(D) None of the above three options

(10) Civil Liability Convention 1969 covers bunker spill (persistent oil) from
(A) Bulk Carriers when carrying bulk cargo (B) Oil Tankers when carrying oil
(C) Container ship when carrying containers (D) All three of the given options

Section B

Answer all questions. Each question carries 2 marks. [5 x 2 = 10 marks]

11. State the full form of SOPEP and the purpose.

12. State the full form of OPRC and the purpose.

13. Explain the purpose of International Anti-fouling Systems (AFS) Convention.

14. State food waste discharge criteria of MARPOL. Where is it recorded?

15. State documents and certificate required onboard under BWM Convention.

Section C

Answer any 05 questions. Each question carries 10 marks.

16. (a) State the MARPOL requirements for pumping out engine room bilge (Machinery space of all ships).
(b) State what parameters to be recorded and where for the discharge of machinery space bilge collection into sea and shore. **[6+4]**

17. (a) Sketch and describe working of a biological Sewage Treatment Plant used on-board.
(b) State the purpose of Sewage Retention System (Holding Tank) and how sewage from Sewage Holding Tank to be discharged at sea. **[7+3]**

18. (a) Define the purpose of ISM Code and SMS (Safety Management System).
(b) Explain Risk Assessment in ISM Code and steps for conducting it on-board. **[4+6]**

19 (a) Explain Emission Control Areas (ECAs) and control limits as per MARPOL.
(b) State the purpose of Incinerator on-board. Can incinerator be operated when the ship is in port? Can fuel oil sludge be incinerated in ECAs? **[6+4]**

20. (a) Sketch and describe working of 15 ppm Oily Water Separator (OWS)
(b) Explain the type of pump used and working principle of 15 ppm alarm unit. **[7+3]**

21. Explain the importance and salient features of following on-board drills:
(a) Fire drills
(b) Enclosed space entry and rescue drills **[5+5]**

22. Describe measures to protect marine environment for following on-board activities:
(a) Bunkering
(b) Ballast exchange **[5+5]**

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