

**INDIAN MARITIME UNIVERSITY**  
 (A Central University Government of India)  
**END SEMESTER EXAMINATIONS- JUNE 2022**  
**B. Sc (NAUTICAL SCIENCE): Semester – VI**  
**Marine Environmental Protection – UG21T4606**

**Max Marks: 70**

**Date:09.06.2022**

**Pass Marks: 35**

**Time: 3 hours**

**Part - A Q.1**

**[10 x 1 = 10 Marks]**

<b>(i)</b>	<b>Great Barrier Reefs in Australia - for ecological criteria is designated as: -</b>	
A	Special area	
B	Particularly Sensitive Sea Area (PSSA)	
C	Restricted area	
D	None of the choices	
<b>(ii)</b>	<b>Oil Record Book (ORB) - Part I is required to be provide on: -</b>	
A	every oil tanker of 150 gross tonnage and above and every ship other than oil tanker of 400 gross tonnage and above	
B	every oil tanker of 400 gross tonnage and above	
C	every oil tanker of 400 gross tonnage and above and every ship other than oil tanker of 150 gross tonnage and above	
D	None of the choices	
<b>(iii)</b>	<b>Segregated Ballast of oil tanker built in Sept 2020 should: -</b>	
A	Comply with D-2 standard of BWM convention	
B	pass through oil filtering equipment	
C	pass through ODMCS	
D	None of the choices	
<b>(iv)</b>	<b>Any discharge into the sea of noxious liquid substances or mixtures containing such substances is prohibited in: -</b>	
A	Baltic Sea	
B	North Sea	
C	Antarctic area	
D	All choices	
<b>(v)</b>	<b>The requirements of Annex III: -</b>	
A	apply to harmful substances carried on ship in packaged form including ship's stores.	
B	apply to marine pollutants in ship's stores.	
C	apply to harmful substances in in packaged form in ship's equipment and cargo.	

D	apply to harmful substances carried on ship in packaged form excluding ship's stores and equipment.	
(vi)	<b>Every ship which is required to comply with the provisions of Annex IV shall be subject to the following surveys: -</b>	
A	Initial survey and Renewal survey	
B	Initial survey, Annual survey and Renewal survey	
C	Initial survey, Annual survey, Intermediate survey and Renewal survey	
D	Initial, Renewal survey and additional survey either general or partial	
(vii)	<b>A Cargo Record Book (CRB) shall be provided to every ship to which: -</b>	
A	Annex I & II of MARPOL applies	
B	Annex II of MARPOL applies	
C	Annex I of MARPOL applies	
D	None of the choices	
(viii)	<b>Bunker delivery note shall be retained after the fuel oil has been delivered on board: -</b>	
A	for a period of one years	
B	for a period of two years	
C	for a period of three years	
D	None of the choices	
(ix)	<b>Annex VI of MARPOL came into force on: -</b>	
A	8 <sup>th</sup> Sept 2017	
B	19 <sup>th</sup> May 2005	
C	31 <sup>st</sup> Dec 1988.	
D	None of the choices	
(x)	<b>The D-1 standard requires ships to conduct an exchange of ballast water such that: -</b>	
A	100% of water by volume is exchanged far away from the coast.	
B	at least 85% of water by volume is exchanged far away from the coast.	
C	at least 80% of water by volume is exchanged far away from the coast.	
D	at least 95% of water by volume is exchanged far away from the coast.	

**Part - B Q.2**

**[5 x 2 = 10 Marks]**

- Q. 2 A)** Define PSSA. Give example of PSSA.
- B)** What are uses of Oil/water interface detector as required by MARPOL Annex- I?
- C)** Expand the following: -
- i. ODMCS
  - ii. ODS

- iii. SMPEP
- iv. NPDES

- D) What are the categories of garbage as per Annex- V of Marpol?
- E) Define category Z of Noxious liquid substances.

**Part – C                      ANSWER ANY 5 QUESTION OUT OF 7 QUESTIONS**

- Q. 3 A)** Explain 5 important effects of Marine Pollution. **(5 Marks)**  
**B)** Write in brief the history oil pollution at sea and evolution of MARPOL with major events and dates. **(5 Marks)**
- Q. 4 A)** An oil tanker discharged her crude oil cargo and proceeding to next port for drydocking. She will be cleaning her cargo tanks. What are the criteria that the ship should follow while discharging oily water mixture from slop tanks? **(5 Marks)**  
**B)** Describe SOPEP document as required by MARPOL. **(5 Marks)**
- Q. 5 A)** Describe Procedure and Arrangement (P&A) Manual, required on board NLS tankers. **(5 Marks)**  
**B)** What is the ventilation procedure to be followed to remove cargo residue in tank as per the Annexure of Annex II of MARPOL? **(5 Marks)**
- Q. 6 A)** What are the requirements regarding the documentation of Harmful substances carried on ship in package form? **(5 Marks)**  
**B)** What are the surveys an oil tanker of 150 GT and above is subject to during its validity period of IOPP Certificate? **(5 Marks)**
- Q. 7 A)** What are the provisions and requirements for discharging sewage into the special area? **(5 Marks)**  
**B)** What are the precautionary measures that a ship can adopt to reduce unnecessary garbage generated on board ship? **(5 Marks)**
- Q. 8 A)** What are the safety precautions that should be observed while carrying out ballast water exchange in open sea? **(5 Marks)**  
**B)** Draw a labelled diagram of A Sewage Treatment Plant (STP). **(5 Marks)**
- Q. 9 A)** What is fouling of ship's hull? How does anti-fouling paint save the shipowner's money? **(5 Marks)**  
**B)** What are hazards to which workers in ship recycling industry exposed to? **(5 Marks)**