

**INDIAN MARITIME UNIVERSITY**  
**(A Central University, Government of India)**

**May/June 2016 End Semester Examinations**  
**B.Sc. (Nautical Science) - Fifth Semester (2013 batch onwards)**

**Marine Environment Protection - V (T 2508)**  
**(MARPOL, Ballast Water)**

**Date : 13.07.2016**

**Time: 3 Hrs**

**Maximum Marks: 70**

**Pass Marks : 35**

**Note: Attempt any 7 questions out of 9 questions. All questions carry equal marks.**

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1. a) List the salient features of National Pollutant Discharge Elimination system of US Clean Water Act. (5)  
b) List the contents of SOPEP as per Annex- I of MARPOL (5)
2. a) Explain the discharge criteria from machinery space in special area (5)  
b) List the special areas of Annex – I of MARPOL (5)
3. Explain the requirement as per MARPOL Annex- I  
a) Segregated Ballast Tank (5)  
b) Pumping, Piping and discharge arrangement (5)
4. a) List the Parts of oil discharge monitoring and control system (4)  
b) Explain the Control System for overboard discharge valve (4)  
c) What is the purpose of oil / water interface detector (2)
5. a) A Tanker is discharging dirty ballast at 1500 m<sup>3</sup>/ Hr. The oil content is 150 ppm. The vessel's speed is 15 knots. What is the instantaneous rate of discharge in Litres per Nautical mile?  
Is the vessel permitted to discharge the dirty ballast now? (4)  
b) What certificate is required to be carried onboard as per Annex – II of MARPOL? (2)  
c) What is the purpose of Slop Tank. In what ways is it different from other tanks? (4)
6. a) Explain the discharge requirement for category Y cargo. (5)  
When is pre wash required for Category Y Cargo?  
b) What entries are made in the Cargo Record Book? (5)
7. Explain as per Annex – III of MARPOL –  
a) Marking and Labeling (5)  
b) Documentation (5)

P.T.O.

8. a) List the Annexes of MARPOL (5)  
b) Explain the harmful effects of pollution on Marine environment (5)
9. a) Explain the purpose of standard discharge connection required by Annex-I of MARPOL (5)  
b) What are the contents of Procedures and Arrangements Manual of Annex- II (5)

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