

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)  
End Semester Examination Dec 2019/Jan 2020  
**B.Sc. (Nautical Science)**  
**Semester -VI**

**UG21T2608-Marine Environmental Protection (Marpol, Ballast Water)-II**

**Date: 27-12-2019**

**Max Marks: 70**

**Time: 3 Hour**

**Pass Marks: 35**

**Note:** Answer any **SEVEN** Questions out of **Nine** Question.  
All Questions carry equal marks.

Q1. (1x10 Marks)

- a) The International Convention on the control of Harmful Anti-fouling systems on ships, prohibits the use of harmful \_\_\_\_\_compounds in anti-fouling paints used on ships.
- b) All ships fitted with ballast water treatment systems must have a \_\_\_\_\_certificate in compliance with the IMO Guidelines.
- c) The BWM convention requires that vessels should conduct ballast water exchange at least \_\_\_\_\_nautical miles from the nearest land.
- d) An ISPP Cert. shall be issued for a period specified by the administration which shall not exceed \_\_\_\_\_.
- e) A ship discharging comminuted and disinfected sewage should be at a distance of more than \_\_\_\_\_from the nearest land.
- f) MARPOL Annex IV- Regulations for the Prevention of Pollution by Sewage from ships, came into force on \_\_\_\_\_.
- g) The \_\_\_\_\_Convention was adopted to ensure that adequate compensation for damage resulting from maritime casualties involving oil-carrying ships.
- h) Every ship of \_\_\_\_\_tons gross tonnage and above, and every ship certified to carry 15 persons or more shall carry a garbage management plan.
- i) \_\_\_\_\_in the appropriate language are positioned on the ship to notify the crew and passengers of the disposal of garbage.
- j) The sequential method, \_\_\_\_\_ and dilution method are the methods for exchange of ballast water.

Q2. a) List the Special Areas for Annex V of MARPOL. (5 Marks)

b) Describe D-1 standard of Ballast water management. (5 Marks)

Q3. a) What are the emissions from the ship which are included in Annex VI of Marpol? (5 Marks)

b) Draw a shipboard Incinerator and explain its working? (5 Marks)

Q4. What are provisions in MARPOL for discharging Sewage using following systems: (2x5=10 Marks)

- a) Sewage Treatment Plant.
- b) Holding tank system for retention of Sewage.

Q5.a) Describe the harmful effects of Anti fouling paint which led to International Convention on Anti fouling paint. (5 Marks)

b) Define following:

- i) Sewage
- ii) Garbage (5 Marks)

Q6.a) What are the alternative systems to Antifouling paints having TBT? (5 Marks)

b) What records are required to be maintained as per BWM convention? (5 Marks)

Q7. Write short note: (2x5=10 Marks)

- a) Garbage Management Plan.
- b) Bunker delivery note.

Q8. Write short note on: (10 Marks)

- i) Civil Liability Convention (CLC).
- ii) Fund Convention.

Q9. a) What are provisions in MARPOL for controlling pollution by Volatile Organic Compounds? (5 Marks)

b) Describe Garbage Record Book. (5 Marks)

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