

# **INDIAN MARITIME UNIVERSITY**

(A CENTRAL UNIVERSITY, GOVERNMENT OF INDIA)

**B.Sc. (NAUTICAL SCIENCE) – II Semester**

**DECEMBER 2014/ JANUARY 2015**

**MARINE ENGINEERING, AUTOMATION & CONTROL SYSTEMS –PAPER II**

**SUBJECT CODE: T -2212**

**Time: 3 Hrs**

**Date:**

**Max. Marks: 70**

**Pass Marks: 35**

**NOTE:** Answer at least **ONE** question from each section, a total of **SEVEN** questions to be answered.

All questions carry **EQUAL** marks.

## **SECTION - A**

1. (a) Draw & explain a navigational lighting circuit fitted with indicators/alarms and connected to both main and alternate/emergency power source. (6 marks)  
(b) How is an electrical motor coupled to the purifier drive? Why this type of coupling is used? (4 marks)
2. (a) Explain in detail the procedure of maintenance of batteries. (5 marks)  
(b) Describe the procedure for starting emergency generator manually. (5 marks)
- 3.(a) Name the machineries found in an engine room of a ship. (4 marks)  
(b) Name any five supporting pipeline system for the main engine plant (3 marks)  
(c) Name the services/equipments that should be supplied emergency power from the emergency generator. (3 marks)
4. a) How are the ships classified as per the propulsion plants? (5 Marks)  
b) Name any five supporting pipeline system for the main engine plant (5 Marks)

## **SECTION- B**

5. (a) Explain the term Pre-heating of Main Engine. (5 marks)  
(b) What do you mean by a “hydrophore tank”? How does it work on a ship? (5 marks)
6. Explain the following terms (10 marks)
  - (a) Annealing
  - (b) Quenching
  - (c) Stress relieving
  - (d) Pack carburising

(e) Cryogenic treatment

7. (a) What are the different types of steel & their uses? (6 marks)  
(b) What are the uses of ceramics? (4 marks)

**SECTION – C**

8. (a) Draw and explain the process of steel refining. (6 marks)  
(b) How Ferrous metal and cast iron are classified? (4marks)
9. Draw a general layout of engine room bottom platform of a bulk carrier & Name the different machineries. (10 Marks)

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