

## COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

### B.TECH. DEGREE IV SEMESTER EXAMINATION IN MARINE ENGINEERING JUNE 2020

#### MRE 1407 SHIP TECHNOLOGY (2013 Scheme)

Time: 2hrs 30 Minutes [30 Minutes for Answering and Scanning/Uploading the page of the Answer Sheet per module]

Max. Marks: 70 (14 per module)

#### INSTRUCTIONS

1. You have to be available in Google Meet on demand by the faculty.
2. You have to share your '**live location**' to the faculty before uploading the answer sheet.
3. You have to answer only one question per module.
4. Answer may not exceed one page of an A4 size paper in a standard handwriting, as far as possible.
5. If at all an answer goes beyond one page, (due to your handwriting) another page can also be used. In such a situation, the page number should be given as 1/2, 2/2.
6. You have to put dated signature along with Register Number, Subject Code, Module/Group Number (as given in the Question Paper) in each page.
7. You have to put the Question Number correctly.
8. After answering the question, you have to scan and upload the answer page.

#### MODULE - I

(Answer **ANY ONE** question)

- I(1). (a) On the profile of a ship, show depth moulded, depth extreme, breadth moulded, breadth extreme and moulded draft, extreme draft by indicating thickness of plates. (7)
- (b) Extreme breadth of a ship = 30 m, extreme depth of a ship = 15 m, Extreme draft of the ship = 9 m. If the bottom shell thickness = 30 mm, deck plate thickness = 25 mm and side shell thickness = 20 mm, calculate moulded breadth, moulded depth and moulded draft. (7)
- OR**
- I(2). (a) What stress will occur to ship structure when it is rolling and how can it be resisted? (7)
- (b) What non hazard method you will use to find an under surface crack in a weld? Briefly explain the working of it. (7)

**MODULE - II**

(Answer *ANY ONE* question)

- II(1). (a) How do you strengthen bottom portion of a single bottom structure? Show it with a figure. (7)
- (b) How do you reduce free surface effect of loose materials in a bulk carrier? Show it with a figure marking structural arrangements. (7)

**OR**

- II(2). (a) How do you strengthen hatch opening area against discontinuity? Show it with a figure of deck arrangements near hatch. (7)
- (b) Which structural member resists spreading of fire and flooding in cargo holds? What is the minimum number of such structures in a ship? Briefly explain their importance. (7)

**MODULE - III**

(Answer *ANY ONE* question)

- III(1). (a) Which member resist panting in fore end? Show it and other important structures on a figure. (7)
- (b) Briefly explain the structural member provided at forward end of a ship which reduce the drag force in a ship. (7)

**OR**

- III(2). (a) Draw the figure and explain the major structural member at aft which supports propeller shaft, stern tube etc. and reduce vibration. (7)
- (b) Draw the figure and briefly explain the member which takes the weight of rudder and rudder stock in case the rudder carrier bearing fails. (7)

**MODULE - IV**

(Answer *ANY ONE* question)

- IV(1). (a) How does the free board helps in the stability of a ship? Briefly explain the two categories of ships connected with freeboard. (7)
- (b) Prepare Plimsoll marking of a ship with the following details: (7)
- |                         |            |
|-------------------------|------------|
| Extreme depth           | = 25 m     |
| Freeboard               | = 5 m      |
| Displacement weight     | = 50,000 t |
| Tonnes per cm immersion | = 50       |

**OR**

- IV(2). (a) How do you plan a shipyard layout? Briefly explain it with a figure. (7)
- (b) What are the tests carried out at sea before handing over a ship to owner? (7)

**MODULE - V**  
(Answer *ANY ONE* question)

- V(1). (a) How is the weight of platform is transmitted in different stages in a jackup platform briefly explain it with figures? (7)
- (b) Which diving is better SCUBA diving or Surface Diving? Explain briefly. (7)

**OR**

- V(2). (a) Classification society surveyors are involved in the complete construction and operation of a ship. Briefly explain how they are doing it. (7)
- (b) How do you register a ship? Briefly explain the procedures. (7)

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