ACADEMIC YEAR 2023 - 2024

Program	Year	Semester	Paper
ME	1	1	MID TERM

MODULE NAME:	**Marine Engineering & Ship Knowledge**		
MODULE CODE:	**MMARENG-I**	**EXAM DATE:**	**09/11/2023**
TEACHER'S NAME:	**Hamid Soltani**	**DURATION:**	**1.5 hrs.**

Questions to be answered on:	**Allowed requirements:**	**Number of pages**
✓ Space provided on the question paper	Pen, Pencil & Calculator	(Incl. cover page): **7**

Points of attention:

- For each question, the maximum earned points are mentioned between brackets at the end of each question.
- Write very clearly! Answers that are not readable are not marked and don't get points!
- Make sure your answers are written to the point.
- All answers should be written **in English.**
- Write all the answers in **blue or black pen only.**
- Use the **pencil** only for **diagrams & graphs.**
- Show all the calculation steps in the given space.
- When finished submit the question paper, together with the answer scripts and the signed cover page to the invigilator.
- Any cheating/copying may result in an instant failing of the examination.

STUDENT NAME:

STUDENT ID:

FINAL MARKS	
	41
	10

Number of answer scripts:……..…….. **Invigilator:**……..……..…..

Student's signature: …… **Time of receipt:**……..…..

Answer All Questions (Total questions = 7)

Part1: Scenario [25 Marks]

The ship is sailing in the sea, and the seawater cooling system is in use. Suddenly, the alarm system sounds, indicating that the seawater cooler outlet temperature has increased significantly. The duty engineer decides to change over the sea chest filter from the high sea chest filter to the low sea chest filter.

Question 1:

Discuss the safe procedure that the duty engineer must consider to change over the sea chest filter from high to low. Mention at least four important steps for a safe changeover. (4Marks)

Question 2:

The scenario mentions that the seawater cooler outlet temperature has increased significantly. The duty engineer checked the seawater coolers inlet and outlet valves and found that all the valves are fully open. In your opinion, what are the possible causes that might have led to an increase in the seawater cooler outlet temperature? (1 mark for each correct cause mentioned, up to 4 marks) (4Marks)

Question 3:

Discuss why the system has a high and low sea chest and where they are used. (2 marks for correctly explaining the use of low sea chest filter and 2 marks for correctly explaining the use of high sea chest filter) (4Marks)

Question 4:

Draw a detailed diagram of the sea water cooling system as described in the lesson. Ensure you include all the components and label them clearly. Your drawing should be neat and accurate. (13 Marks)

Marking Scheme:
- Correct Drawing: 3 marks
- Cleanliness of Drawing: 2 marks
- Labeling of Components (16 components should be lable): 8 marks

Part2: Scenario [7 Marks]

During a routine inspection on a container ship, the duty engineer found that the bilge water in the bilge well port (BW-P) is not decreasing despite the bilge pump being in operation. The engineer also noticed that the bilge pump discharge pressure is lower than usual.

Question 5:

Based on the scenario, list three possible reasons why the bilge water is not transferring from the bilge well port to the bilge holding tank (1 mark for each correct reason listed, up to 3 marks). (3 Marks)

Question 6:

Explain how the engineer can evaluate the efficiency of the bilge pump under these circumstances(1 mark for each correct point mentioned, up to 4 marks). (4 Marks)

Part3: Scenario [9 Marks]

The ship is in the middle of the ocean, and due to a severe leak in one of the main pipes, the bilge water is rising rapidly in the bilge well aft (BW-A). The duty engineer finds that the bilge pump is not operational.

Question 7:

What are the possible alternatives and options available to the engineer to prevent the bilge water from overflowing? (1 mark for each correct alternative mentioned, up to 4 marks) (4 Marks)

Question 8:

What is the purpose of the bilge holding tank? (2 Marks)

Question 9:
Explain the reasons and sources of bilge water.(0.5 marks for each reason/source listed, up to 3 marks) (3 Marks)

MLO & Bloom's Level of Complexity

Q #	MLO Addressed	Complexity Level	Mark	Remark
Q1	**MLO 2**	Application	**4**	
Q2	**MLO 3**	Analysing	**4**	
Q3	**MLO 1**	Understanding	**4**	
Q4	**MLO 2**	Application	**13**	
Q5	**MLO 3**	Analysing	**3**	
Q6	**MLO 4**	Evaluating	**4**	
Q7	**MLO 3**	Analysing	**4**	
Q8	**MLO 1**	Understanding	**2**	
Q9	**MLO 1 & 3**	Understanding/ Analysing	**3**	