ACADEMIC YEAR 2023 - 2024

Program	Year	Semester	Paper
ME	4	1	Theory Exam

MODULE NAME:	**Maintenance, Faultfindig and Repair**		
MODULE CODE:	**MMAINT**	**EXAM DATE:**	**13/12/2023**
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): **9**

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

	30
	10

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

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

Answer All Questions (Total questions = 7)

Part1: Scenario –Diesel generator [10 Marks]

Question 1:
Given that a ship has three diesel generators and the window for the class survey of Generator No.1 will open in the next 3 months as part of the continuous machinery survey, create a 4-month running hour plan for the generators. Generator No.1 currently has 8000 running hours and should be de-carbonized every 10000 hours according to the manufacturer's instructions. Assume each month consists of 30 days (4 Marks)

Question 2:

Aside from specific tools, spare parts, and inventory, identify and discuss **only six other** important factors that impact the safe and effective maintenance of Diesel Generator No.1. Explain how each factor contributes to the maintenance process. (6 Marks)

Part2: Scenario [6 Marks]

One of the key and crucial competencies related to the management of safe and efficient maintenance and repair procedures onboard a vessel pertains to Dry Docking. Dry Docking involves various preparations and activities that occur before, during, and after the process. To set the context, imagine yourself as the Chief Engineer of a container vessel that is currently in dry dock. The vessel has reached the stage where it is prepared for flooding the dry dock. Given this scenario, please provide responses to the following questions.

Question 3:

As the chief engineer of a container vessel ready for flooding the dry dock, discuss three crucial precautions that must be considered before the dry dock is flooded. (Note: Only the first three precautions mentioned will be considered for grading. Additional precautions will not be awarded marks.) (3 Marks)

Question 4:

Identify and discuss three key precautions that should be taken immediately after flooding the dry dock. (Note: Only the first three precautions mentioned will be considered for grading. Additional precautions will not be awarded marks.) (3 Marks)

Part3: Scenario [8 Marks]

All shipping companies implement systematic and ongoing procedures across their fleets for inspecting equipment and machinery, in accordance with classification rules and regulations. These procedures are designed to comprehensively assess the condition of all machinery, a process known as the Continuous Machinery Survey (CMS). Various types of CMS are necessary to fulfill credit requirements. For instance, 'Open-up Inspection under Surveyor's Attendance' is one such type. Other types include 'Confirmatory Survey' and 'Substitution for Open-up Inspection,' each serving specific roles within the CMS framework.

Question 5:

Compare "Confirmatory Survey" and "Substitution for Open-up Inspection" in the context of the Continuous Machinery Survey (CMS). Explain how they differ in terms of procedure and requirements. (4 Marks)

Question 6:

Provide two examples of machinery or equipment that would typically be included in each type of CMS survey mentioned in Question 5. (4 Marks)

Part4: Scenario [6 Marks]

A marine engineer finds excessive vibration in the turbocharger during operation.

Question 7:

Analyze four potential reasons for these vibrations and the possible two impacts on the engine's performance. (6 Marks)

MLO & Bloom's Level of Complexity

Q #	MLO Addressed	Complexity Level	Mark	Remark
Q1	**MLO 2**	Application	**4**	
Q2	**MLO 1 & 3**	Understanding /Analysing	**6**	
Q3	**MLO 4**	Evaluating	**3**	
Q4	**MLO 4**	Evaluating	**3**	
Q5	**MLO 1**	Understanding	**4**	
Q6	**MLO 2**	Application	**4**	
Q7	**MLO 3**	Analysing	**6**	