

## COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

### B.TECH. DEGREE V SEMESTER REGULAR/SUPPLEMENTARY EXAMINATION IN MARINE ENGINEERING DECEMBER 2020

#### MRE 1505 MARINE AUXILIARY MACHINERY II (2013 Scheme)

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

Max. Marks: 10

#### INSTRUCTIONS

1. You have to be available in Google Meet Video Camera throughout the examination hours.
2. Those students who are not present through Google Meet Video Camera will not be permitted to write the online examination.
3. You have to share your '**live location**' to the faculty before uploading the answer sheet.
4. You have to answer only one question.
5. You have to write Register Number, Subject code and Module/Group Number (as given in the Question Paper) in each page.
6. Answer may not exceed one page of an A4 size paper in a standard handwriting, as far as possible.
7. 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.
8. You have to put the Question Number correctly.
9. After answering the question, you have to scan in pdf format and upload the answer page in a format of <reg. no.><module/group no.><question no.>.pdf.

#### MODULE - I

(Answer **ANY ONE** question)

- I(1). (a) Sketch and describe the operation of a 4 ram electro hydraulic steering gear. (5)  
(b) What are the SOLAS requirement pertaining to the speed of response and angle of movement for this system? (5)
- OR**
- I(2). (a) Sketch and mark all parts of an oil lubricated stern tube system. (5)  
(b) List various stresses mention the reasons for acting on the tail shaft. (5)

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**MODULE - II**

(Answer **ANY ONE** question)

- II(1). (a) Explain the procedure and precautions taken while refitting a keyless propeller. (5)  
(b) What are the precautions taken in E/R while encountering bad weather at sea? (5)

**OR**

- II(2). (a) List various machinery related jobs attended during dry docking of a vessel. (5)  
(b) What are the different arrangements used for the hull protection? (5)

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**MODULE - III**

(Answer *ANY ONE* question)

- III(1). (a) Briefly explain the causes for vibration of shafting system of a ship. (5)  
(b) What are the methods used for reducing the effects of vibration onboard? (5)

**OR**

- III(2). (a) What is meant by Critical speed of a diesel engine? How it effects the operation of engine? (5)  
(b) What are the different measures taken to minimise the effect of noise pollution? (5)

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**MODULE - IV**

(Answer **ANY ONE** question)

- IV(1). (a) Sketch an Oily water separator suitable for a cargo vessel. (5)  
(b) Mention the starting procedure for above mentioned OWS. (5)

**OR**

- IV(2). (a) Sketch an aerobic type of sewage treatment plant. (5)  
(b) Enumerate the conditions to be satisfied for discharge of treated bilge water into sea. (5)

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**MODULE - V**

(Answer **ANY ONE** question)

- V(1). (a) What are the desirable properties for the crankcase lubricating oil for a 2 stroke diesel engine? How these qualities are achieved? (5)  
(b) What are the reasons for change in viscosity of lubricating oil in service? (5)

**OR**

- V(2). (a) Differentiate between Boundary layer and hydro dynamic lubrication process. (5)  
(b) Discuss the importance of lubricating oil analysis. Explain how it will be helpful for the maintenance planning? (5)

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