COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

B.TECH. DEGREE VI SEMESTER EXAMINATION IN MARINE ENGINEERING JUNE 2020

MRE 1604 MARINE INTERNAL COMBUSTION ENGINES - II

(*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 vessel fitted with 2-stroke reversible type main engine is moving in AHEAD direction. The engine is now put to ASTERN in safe manner. Write the sequence of operations happening in the engine manoeuvring system components to achieve the reversing action. (14)

OR

I(2). (a) An out-of-phase diagram taken using an indicator instrument reveals high compression pressure and high peak pressure than the normal. Note down the possible reasons for same and actions to correct it. (4)

(b) Sketch the complete flow path circuit of lubricating oil, depicting clearly all the internal and external components through which it flows, in a 2-stroke crosshead type engine. (10)

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MODULE - II

(Answer ***ANY ONE*** question)

II(1). (a) Mechanical governors are not preferred for medium to large size engines – Justify this statement with appropriate reasons. (10)

(b) How separately caged exhaust valve design helps minimise maintenance in medium speed diesel engines? (4)

OR

II(2). (a) How the use of poor quality fuel affect the following engine components: (10)

(i) Turbocharger

(ii) Exhaust valves

(b) How intelligent engine helps to minimise air pollution? (4)

MODULE - III

(Answer ***ANY ONE*** question)

III(1). What is the maximum wear allowed on a cylinder liner? After measurement of cylinder liners, how are the results compiled for evaluating the condition? (14)

OR

III(2). Describe how crankshaft deflections are taken and recorded. How it is ascertained that alignment is acceptable? (14)

MODULE - IV

(Answer ***ANY ONE*** question)

IV(1). Explain with a simple sketch an air motor that can be used for operating ship's gangway. (14)

OR

IV(2). Explain the working principle of following types of compressors. Also sketch the pressure-velocity variation profile across the inlet to outlet for both types. (14)

(i) Centrifugal compressor

(ii) Axial compressor.

MODULE - V

(Answer ***ANY ONE*** question)

V(1). Compare between open cycle and closed cycle gas turbine plants. (14)

OR

V(2). What are the various methods of improving thermal efficiency of a gas turbine plant? (14)

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