

CBCS SCHEME

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21MR52

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Marine IC Engines and Propulsion System

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Draw and explain a 4-stroke timing diagram for a marine diesel engine. (12 Marks)
b. Explain the differences between a 2-stroke engine and a 4-stroke engine. (08 Marks)

OR

- 2 a. Draw and explain a 2- stroke timing diagram for a marine diesel engine. (12 Marks)
b. Explain the different types of Indicator cards. (08 Marks)

Module-2

- 3 a. Explain the different types of crankshaft with sketches. (12 Marks)
b. What are the functions of the bed-plate, A-frame, entablature? Explain with a sketch. (08 Marks)

OR

- 4 a. How does cooling take place for the main engine piston? Also write a note on piston rings. (12 Marks)
b. Explain about main engine cylinder head and its mountings. (08 Marks)

Module-3

- 5 a. Explain how the Alpha lubricating system works with a neat sketch. (12 Marks)
b. What are the properties of fuel oil? Explain any 8 of them. (08 Marks)

OR

- 6 a. With a neat sketch, explain the working of Part-Controlled Helix Jerk Pump. (12 Marks)
b. Define scavenging. Explain various types of scavenging with neat sketches. (08 Marks)

Module-4

- 7 a. With a neat sketch, explain main engine air start valve. (10 Marks)
b. What is vibration? Explain about causes and methods of reducing engine vibration. (10 Marks)

OR

- 8 a. Explain the working principle of electric governor with a sketch. (10 Marks)
b. Explain the effects, limits, remedies and controls for SO_x and NO_x engine. (10 Marks)

Module-5

- 9 a. With a neat sketch, explain the functions of stern tube. (12 Marks)
b. Write a note on ships propeller, fixed pitch and controllable pitch propeller. (08 Marks)

OR

- 10 a. Write a note on electrical and jet propulsion. (12 Marks)
b. What are the reasons for propeller cavitation? Explain the effects of propeller cavitation and methods to reduce it. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.