

**Indian Maritime University**  
**(A Central University, Govt of India)**

**Mar/Apr'26 SE**

**Programme Name: B Tech (Marine Engineering)**

**Semester: V**

**Subject Code: UG11T4502**

**Subject Name: Marine Internal Combustion Engines and Technology 2**

Date: 05.03.2026

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.  
(ii) Options, if any, are specified in respective section.

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. The overlap timing provided in the distributor valves of multiple units in the propulsion system to \_\_\_\_\_

- A. avoid all unit starting air valve in closed position  
B. stop the engine rotation if unsafe condition attained.  
C. turn the engine using slow turn valve only.  
D. release the excess air through other unit

2. Watching the following parameter is an essential function during engines turned with turning gear

- A) Pre-lube oil flow  
starting air pressure B)  
C) Motor ampere  
D) All of the above

3. Peak pressure indicator can measure compression pressure from a particular cylinder

- a. If fuel is shut off from that cylinder  
b. If fuel is being injected into that cylinder  
c. If the engine is running at normal RPM  
d. If the engine is at stop condition

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4. Fuel injection pumps using the port and helix metering principle requires the use of a \_\_\_\_.

- (a) lapped plunger and barrel
- (b) variable stroke
- (c) variable cam lift
- (d) None of the above

5. FIVA means

- A. Fuel In Valve After B. Fuel Injection Valve Actuation C. First Injection Valve after D. None of the above

6. What is the use of "Rotocap" in the engine?

- A. To rotate the engine crankshaft
- B. To rotate the turbocharger
- C. To rotate the exhaust valve
- D. To rotate the inlet valve

7. Hunting in the governor means \_\_\_\_\_

- A. Chasing the speed change.
- B. Over shooting or undershooting beyond the set speed
- C. No response for speed change
- D. None of the above

8. In Alpha lubricator, the amount of oil injected can be adjusted automatically, by

- A. Sulphur sensor
- B. load transmitter
- C. Oil BN dedector
- D. All of the above

9. Which instrument is used to take crankshaft deflection readings?

- a) Trammel gage
- b) Dial type outside micrometer
- c) Dial type inside micrometer
- d) Gage block

10. Exhaust valve grooving and corrosion is caused by certain components residual fuel oil. These components are sodium, sulphur, and.

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- a. vanadium
- b. carbon
- c. copper
- d. ash

Section B

Five Questions of 02 Marks each

11. What is your understanding of "interlocks", list the interlocks applied on main propulsion engine.
12. How Dual Fuel engine ignition works for the gaseous fuel?
13. List the advantages of electronically controlled engines as propulsion engines on-board.
14. Explain the term "Drop" of the governor?
15. Write details about "starting air-line explosion"

Section C

Seven Questions of 10 Marks each of which any 05 questions to be answered.

16. Describe how the following vibrations of main propulsion engine has been dampened?
  - A. Axial vibration. (3 marks)
  - B. Transverse vibration. (3 marks)
  - C. Torsional vibration. (4 marks)
17. Explain with the help of a diagram 2 stroke cycle draw card, power card & injection related faults for early injection, late injection, after burning & leaky fuel injector. (10 marks)
18. Illustrate the significant of variable Injection system, explain how this is achieved in MAN B&W MC engine. (10 marks)
19. Draw and explain the common rail fuel injection system used in RT flex engine. (10 marks)
- 20 A. Explain in detail, how lubricating oil reaches the piston crown in 4 stroke medium speed engine? (5 marks)
- 20 B. Sketch a diagrammatic arrangement of a propeller drive from two medium speed diesel engine (5 marks)
- 21 A. Draw and explain the operational state of lubrication oil systems for the main propulsion engine. (6 marks)
- 21 B. What is the importance of oil mist detector alarm? And how it works? (4 marks)
- 22 A. Explain the procedure for replacing the liner of main propulsion engine (5 marks)
- 22 B. Examine the causes, symptoms, effects and methods of treatment of oils that have been infected with microbiological organisms (5 marks)

