D. MARINE
Study Material

MEO CLASS 2 WRITTEN: MEP

(MARINE ENGINEERING PRACTICE)

FOR INDIAN COMPETENCY EXAM

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JAN-2026

1. Describe the procedure to be undertaken for overhaul of an oil cooled Main Engine Piston detailing the DEM tools used for overhauling the piston. Also, describe the procedure for testing of the Main engine oil cooled Piston after overhaul. (16)
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2 It is found that the Main engine cylinder head studs are breaking during voyage:
a) State, with reasons, the possible causes. (6)
b) State, with reasons and the likely effects on the engine if it is allowed to operate with broken studs. A (5)
c)Explain how this problem can be minimized? (5)
Click Here to See the Answer

3. Describe the procedure for carrying out the rocking test of a deck electrohydraulic cranc. Please explain how will you ensure that you get the correct readings and how do you interpret the readings obtained from this test for planning future overhauls of the crane. (16)
Click Here to See the Answer

4. During the overhaul of medium-speed auxiliary diesel generator you find that the white metal of one of the bottom end bearings has cracked. Explain how you would fit a spare bearing and enumerate the various tests you would carry before putting the machine back into service. (16)
2022/JUL/07 **2024/OCT/06** **2025/APR/07**
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5. Under Continuous survey of machinery (CSM) the bottom end bearing of a large slow speed engine is due for survey.
(a) As Second Engineer, explain the procedure involved in complete inspection of a bottom end bearing
(b) List the precaution to be taken during inspection. (4)
(c) What tests are carried out on completion of survey and re-assembly.

(d)A Plate type LT cooler of the centralized cooling water system on your ship is showing poor performance. What measures you would initiate to rectify the problem and improve the performance. (16)

2021/JAN/01 **2021/OCT/09** **2021/DEC/02** **2022/FEB/06**
2021/APR/01 **2024/JAN/01** **2024/JUN/07** **2025/JAN/01**

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6. As a second engineer in a ocean going ship, what actions you will take if the specification of the bunkers received in the last port is substantially different than the old bunkers with respect to:
(a) density
(b) Viscosity
(c) Cat fines
(d) Sulphur content
(e) Water content (16)

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7. With reference to a domestic refrigeration system
(a) What are the indications of overcharge, undercharge and air ingress into the system? (8)
(b) How are the above abnormalities rectified? (8)

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8. What is understood by risk on board ship? As a 2nd engineer discuss various methods for hazard identification and assessment of risk available on board. (16)

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9. Sewage treatment plant is due for internal inspection. List in detail the procedure along with various parts to be included in the inspection and the safety precautions for carrying out the inspection of the STP.

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FEB-2026

1. Describe the procedure to be undertaken when, upon a routine schedule for changing **Exhaust Valve** on a main engine, it is found that the Exhaust valve body is seized inside the cylinder head and cannot be removed by conventional means and the internal threads in the exhaust valve body connecting to the exhaust bellows are damaged. (16)
2023/AUG/01 **2023/OCT/09** **2025/AUG/02** **2026/FEB/01**
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2. it is found that the tie rods are persistently becoming slack:
a) State, with reasons, the possible causes.
b) State, with reasons, the likely effects on the engine if it is allowed to operate with slack tie rods.
c)Explain how this problem can be minimized? (5)
2023/AUG/02 **2026/FEB/02**
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3a) Briefly explain the term metal fatigue and further explain how fatigue failure occurs. (4)
b) State the difference between high stress/low cycle and low stress/high cycle fatigue giving an example of each (4)
c)State how defects in the metal can influence the expected safe life of a component
d)State how fuel injection timing and cylinder power balance can influence the possibility of fatigue cracks developing in the bedplate.
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4 With reference to air receivers and bottles explain with reasons:
a) Why regular systematic internal inspection is advisable. (4)
b) Which internal areas of large receivers should receive particularly close examination? (4)
c)How bottles are inspected internally and what parts should be closely examined?

d) How the condition of a bottle or receiver that cannot be inspected internally is checked (4)
2023/JAN/07 **2023/AUG/04** **2024/APR/07** **2026/FEB/04**
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5. List the maintenance routines you plan to carry out on the deck hydraulic cranes, winches, and mooring machineries before arrival port after a long voyage, considering the fact that cargo operation is solely dependent on the proper Functioning of the crane and winches (16)
2023/AUG/05 **2026/FEB/05**

6. With reference to the crankshaft deflection of main engine crank shaft,
(a) State the ideal condition required before taking deflections. (6)
(b) How is the accuracy of the reading taken are ensured? (6)
(c) What is the purpose of taking deflection and how is the readings taken interpreted? (4)
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7. Describe the procedure for overhauling a boiler safety valve and explain using sketches where necessary those parts, which require close attention. Also describe the procedure setting of boiler safety valves
2021/AUG/03 **2022/JAN/02** **2022/APR/05**
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8. The LT cooler of the centralized cooling water system on your ship is showing poor performance. What measures you would initiate to rectify the problem and improve the performance. (16)
2025/JUL/04 **2025/OCT/04** **2026/FEB/08**
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9. With reference to the auxiliary engine big end bearing.
(a) State the various inspections done on the bearing shells, crank plo, serrations on the con-md and bolts. (6)
(b) How is the bearing assembled after inspection? (4)
(c) Describe the various checks carried out after assembling the bearing. (6)

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