

EXAMINATION OF MARINE ENGINEER OFFICER

Function: Marine Engineering at Management Level

ENGINEERING MANAGEMENT

India	M.E.O. Class I (July 2023)	(Time allowed - 3hours) Total Marks 100
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NB: (1) Answer any SIX Questions

(2) All questions carry equal marks

(3) Neatness in handwriting and clarity in expression carries weightage

(4) Illustration of an Answer with clear sketches / diagrams carries weightage.

(5) Start answering from the backside of the front cover page

(6) Blank pages if any, to be struck off by (X) at the end of each question.

Q1. A grounded ship has been re-floated and towed by a professional salvor to a place of safety. As per the Salvage Convention the salvor has a right to award.

- a) List the various criteria which are considered under Article 13 of the Convention for determining the amount of award (5)
- b) State the duties of the salvor and the shipowner/master as per this Convention (5)
- c) Assuming LOF-2000 was agreed between the parties, discuss when is the Convention applicable and when the LOF if any dispute arises. (6)

Q2. Detail the inspection that you as the new Chief Engineer of a passenger ship, would make on joining the ship with regard to (i) Ship Stability (ii) Damage control (iii) Firefighting (iv) Critical Machinery and equipment installed. (16)

Q3): Exhaust emission control is a major global issue and under serious consideration by world shipping.

In this context, comment on the following: -

- a) Tier 2 and 3 emission regulation on main engine (4)
- b) Primary NO_x reduction vis-a-vis secondary NO_x reduction measures. (4)
- c) SCR for NO_x Emission Reduction. (4)
- d) Scavenge Air Moisturizing & Exhaust Gas Recirculation for ME. (4)

Q4. Referring to the Maritime Labour Convention (MLC) 2006, discuss

- a) Flag State & Port State responsibilities. (4)
- b) On-board & On-shore Complaint Procedures. (4)
- c) Detainable deficiencies. (4)
- d) Grievance Redressal Mechanisms for Indian seafarers. (4)

Q5. Under Maritime law in case of a collision, explain following.

- (A) apportionment of damages (4)**
- (B) proportionate fault (4)**
- (C) collision liabilities (4)**
- (D) presumptions of fault (4)**

Q6. Formal Safety Assessment (FSA) is being widely used in the rule making processes of IMO. Narrate the objectives, characteristics and processes of the FSA, with specific explanation regarding Hazard Identification, Risk Analysis and Cost Benefit Assessment.

Q7. Hull & Propeller maintenance is gaining popularity with the recent high stress on the energy efficiency of ships. Write short notes on the following:

- (a) Hull Roughness Management**
- (b) Condition Based Propeller Maintenance**
- (c) Propeller Coating & Polishing.**

Q8. An Indian flag vessel collided with another vessel off the coast of India, as a result few lives were also lost and vessel damaged. In accordance with the provisions under the Merchant Shipping Act, what steps should be initiated and who should initiate such steps for the safety of the ships and the marine environment.

Q9. What do you understand by "Unseaworthy vessels" within the meaning of the Merchant Shipping Act, 1958, as amended? What according to you is the difference between "Unseaworthy ships" & "Unsafe ships". What are the obligations of owners to crew with respect seaworthiness?