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Question.

Maritime industries have taken several initiatives to explore new digital technologies and "Artificial Intelligence (AI)" is one of such initiatives. With brief introduction on the principles of AI, explain the following

- a) Advantages and Disadvantages of using AI in maritime industry.
- b) How AI is changing the maritime industry.
- c) How AI create new risks and opportunities for insurance company and classification society.

Question.

explain the principle of "Causa Proxima" in Marine Insurance?

An auxiliary generator engine on your vessel has suffered damage due to engine running on low lubricating oil pressure due to contamination of the lubricating oil by water.

What all actions you will take as a Chief engineer and what all reports and documents you will keep ready to submit for the marine insurance surveyor visiting your vessel to process

Question.

An Indian flag ship has grounded off the coast of India and the owners have abandoned the property.

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 marine property and environment

Question.

Discuss new developments in Impressed Current Cathodic Protection (ICCP) employed for marine structures with specific reference to (a) Computer controlled multi-zone systems (b) Fine grain ICCP.

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Question.

With reference Ballast Water Management Systems on merchant ships, explain the following:- (i) System Design Limitations (SDL) (ii) Treatment Rated Capacity (TRC) (Hi) Failed Vs Invalid Test Cycles.

Question.

Hydrogen is widely discussed as a sustainable fuel for future applications- Discuss with specific references to technical, operational, safety and commercial viability of Hydrogen as a marine fuel

Question.

Classification societies as Recognized Organisations (RO) play an important role in implementation of national and international regulations. State the limitations of the RO highlighting them with reasons. Draw out the salient responsibilities of classification society authorized as RO for a flag State as enumerated in RO Code adopted by the IMO.

Question.

IMO has introduced the EEXI requirements under MARPOL Annex VI Chapter IV for existing vessels from 2023 as a measure towards reduction of CO₂ emissions from shipping.

Explain the various design features adopted in the existing vessels to comply with the present EEXI which meets the EEDI framework under Phase 2 or Phase 3 as applicable.

Question.

State the obligations of a Port State to exercise control on shipping in addition to control by flag states.

Comment, if the Risk-based approach or Concentrated inspection campaigns by some PSC MOUs has further helped eliminate sub-standard ships.

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