



UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 7 Examination in Engineering: October 2019

Module Number: ME7311

Module Name: Advanced Marine Engineering

[Three Hours]

[Answer all questions, each question carries twelve marks]

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Clearly labelled sketches will be given credits

- Q1 a) Sketch and describe a Marine Tele-motor Transmitter, Receiver and associated piping. [5 Marks]
- b) Explain the function of Hunting Gear with a neat sketch. [5 Marks]
- c) Distinguish clearly the operation between follow up and non-follow up steering gear systems. [2 Marks]
- Q2 a) Sketch and describe Total Carbon Dioxide Flooding System for combating fire in passenger spaces on a ship. [6 Marks]
- b) Sketch a Soda Acid Extinguisher and explain its operation indicating operating time, chemical reaction, area of coverage and recharging after use. [3 Marks]
- c) State with reasons the principal causes of fire in accommodation and service spaces while at sea and in port. [3 Marks]

- Q3 a) Draw a sketch of a propeller to show areas where cavitation and other defects are susceptible to form and explain them briefly. [3 Marks]
- b) State with reasons why the shaft line is angled downwards? [3 Marks]
- c) Draw a lay out of a typical shaft line laid as in question Q3. (b) and all member components associated with it. [3 Marks]
- d) State the Colour Code of the Anchor Chain. [3 Marks]
- Q4 a) Sketch and describe a Single Duct Air Conditioning System fitted to a dry cargo ship. [5Marks]
- b) State the influence of processes heating, cooling, ventilating, humidifying and dehumidifying during hot and cold climates. [2 Marks]
- c) Prepare a list of safety devices fitted in the Air Conditioning and Refrigeration Plants on par with SOLAS. [5 Marks]
- Q5 a) Sketch a vertical watertight door and frame showing the manner of attachment to the bulkhead and the additional reinforcement carried by the door to compensate for the load and stress. [5 Marks]
- b) Describe the hydraulic means of closing the door giving suitable diagrams. [5 Marks]
- c) Explain the type of deck machinery used on-board of a ship. [2 Marks]