UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE

Level IV Semester I – 2017 July / August

OCG 4141 – Navigation and International Signals

Answer Only Four Questions including Question Number 5

Time: 01 hour

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01. Modern Marine Navigation aids and equipment are susceptible to fail due to various reasons, while conventional manual systems & nautical charts provide the basic and most reliable data for sea faring. Nautical charts provide most of the essential details for mariners particularly for those who are navigating in coastal waters;

    a. Briefly describe the types of basic nautical chart projections (05 Marks)
    b. The manual system of finding own ship's position at any given time is known as Fixing the ship. What are the methods used to obtain the position lines?

    (05 Marks)
    c. Discuss the most useful details shown in nautical charts (10 Marks)

02. Describe only four the following; (05 x 4 = 20 Marks)

    a. Difference between a Sea Mile and an International Nautical Mile
    b. Limiting Danger Line (LDL) and Safety Swinging Circle (SSC)
    c. Difference between Dead Reckoning (DR) and Estimated Position (EP)
    d. Variation and Deviation
    e. True bearing and Relative bearing

03. Write short notes on the following ;
    a. Latitude and Longitude (04 Marks)
    b. Sea mile and International nautical mile (04 Marks)
    c. What is Anchoring? List out points to be considered when choosing
       a position for anchoring (06 Marks)
    d. Navigation lights with respective arcs and colors (06 Marks)

04. United Nations Convention on the Law of the Sea (UNCLOS) provides the worldwide fundamental governing regulations for all sea going and sea borne vessels & craft. Describe the following terms with related to the UNCLOS; (04 x 5 = 20 Marks)

    a. Territorial waters
    b. Internal waters
    c. Exclusive Economic Zone (EEZ)
    d. Continental shelf
    e. Base line

5.

  a. If you observe a fishing boat at Green 90 (Relative bearing), while your course is 331°, what is the true bearing of the fishing boat? (06 Marks)

  b. Convert the following into reciprocal bearings (02 x 2 = 4 Marks)
      i. 023°
      ii. 189°

  c. An unknown ship is observed at bearing 092° (compass bearing); If deviations is 1°E; (07 x 2 = 14 Marks)
      i. calculate the magnetic bearing
      ii. if true bearing is 088°, calculate the variation

  d. If in an observation, magnetic bearing, variation and deviation were 227°, 3°W and 21/2°E, respectively. (08 x 2 = 16 Marks)
      i. calculate the true bearing
      ii. calculate the compass bearing

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