

**UNIVERSITY OF RUHUNA**  
**BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE**  
**Level IV Semester I – July /August 2016**

**OCG 4141 – Navigation and International Signals**

**Answer all questions**

**Time: 01 hour**

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01. Write short notes on  
a) Nautical chart projections  
b) Limiting Danger Line  
c) True bearing and Relative bearing  
(04x3 Marks)
02. a) How do you describe the difference between a Sea Mile and an International Nautical Mile?  
b) Explain the difference between a Great circle and a Small circle?  
c) Explain the difference between Dead reckoning and Estimated position?  
(05x3 Marks)
03. Briefly explain  
a) Shape of the Earth  
b) Safety Swinging Circle (SSC)  
c) Variation and Deviation  
(04x3 Marks)
04. a) List out things to be considered when choosing a position to anchor (05 Marks)  
b) What are the methods of obtaining a position line? (05 Marks)  
c) What do you understand by pilotage? (05 Marks)
05. Explain followings terms;  
a) Territorial waters  
b) Internal waters  
c) Exclusive economic zone (EEZ)  
(04x3 Marks)
06. An unknown ship is observed at bearing  $092^{\circ}$  (compass bearing);  
a) If deviations is  $1^{\circ}W$ , calculate the magnetic bearing  
b) If true bearing is  $088^{\circ}$ , calculate the variation  
(07x2 Marks)
07. If you observe a boat at Red  $90$  (Relative bearing) and when your course is  $031^{\circ}$ , what is the true bearing of the boat?  
(06 Marks)
08. In an observation, magnetic bearing was  $227^{\circ}$ . If variation is  $3^{\circ}E$  and deviation is  $02^{\circ}W$ ;  
(07x2 Marks)

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