

00275

**B.Sc. (NAUTICAL SCIENCE)**

**Term-End Examination**

**June, 2012**

**BNA-014 : NAVIGATION-I  
(TERRESTRIAL AND CELESTIAL)**

*Time : 3 hours*

*Maximum Marks : 70*

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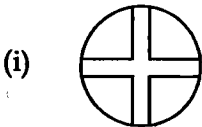
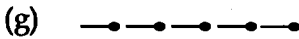
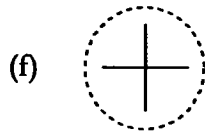
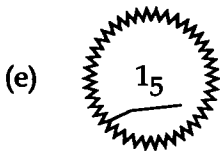
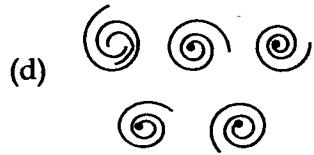
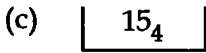
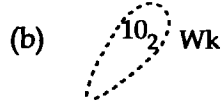
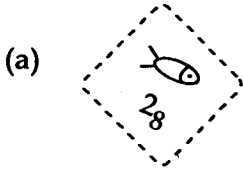
*Note : Attempt all questions. Use of Nories or Burton's tables, nautical almanac 1992 and non-programmable scientific calculator is allowed. Use B.A chart - 813.*

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1. Define and Explain : 8
- (a) DR Position      (b) Estimated Position  
(c) Leeway          (d) Departure
2. (a) Define and Explain : 8
- (i) True course  
(ii) Magnetic course  
(iii) Gyro Error  
(iv) Variation
- (b) A ship departs from position  $07^{\circ}20'$  North  $079^{\circ}10'$  East and arrives in position  $07^{\circ}20'$  N  $077^{\circ}18'$  East after sailing for 8 hrs Find the speed of the ship.

3. Give step by step procedure as to, How amplitude calculation is done using Norie's nautical table 8
4. (a) Explain with examples the standard time and zone time. 8
- (b) On 4<sup>th</sup> May 1992 AM at DR. 41°13' South 102°40' East, LHA of star Archenar by calculation was 286°02.4' at UTC 22h 59m 57s. Find the longitude of the observer.
5. Explain in detail the process of doing chart correction on board. 8
6. At 0900 hrs. Weligama Lt. Ho. and Dondra Head Lt. Ho. were in transit bearing 288° (G) and at same time Dondra Lt. ho. was 10 miles off. 10
- (a) Find ship's position at 0900 hrs. and Gyro Error.
- (b) From this position set a course by Gyro compass to pass 7' off Great Basses reef Lt. ho. Counteracting current which is setting 130°(T) at 3 kts, wind N' by leeway 4° (Ship's Engine speed : 15 kts)

7. Write the meaning of following chart symbols 10  
used on metric chart



8. At 1500 hrs. Colombo SBM bore  $102^\circ$  © 10  
(Var  $13^\circ$ W, Dev.  $2^\circ$ E) with a distance of 8 miles  
by Radar. From this position vessel sailed on a  
course of  $165^\circ$  (C) (Var  $13^\circ$ W, Dev  $14^\circ$ E) with  
engine speed of 15 kts. current was setting  
 $220^\circ$  (T)  $\times$  3kts.
- (a) Find estimated position at 1700 hrs.
- (b) Also find what time Barbaryn Lt. ho. is  
estimated to be abeam, beam bearing and  
distance off when abeam.
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