|BNA-014|

00632

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

December, 2011

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

*Time : 3 hours*   *Maximum Marks : 70*

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.*

1.   Explain with neat diagram   8

     (a)   Variation

     (b)   Deviation

     (c)   Compass error

     (d)   Gyro error (High)

2.   (a)   Explain with neat diagram RHUMB line   8
            and departure.

     (b)   A vessel sailing due east along latitude 45 degrees North for 200 miles find the difference in longitude.

3. On 10th Oct. 1992, find ship's time of Sunrise for an observer in DR 28°30' N 145°12' W.   **8**

4. (a) Explain with neat diagram-first point of aries.   **8**

   (b) On 2nd March 1992 PM at ship in DR 15 degrees 42 minute South and 162 degrees 23 minutes West. Find LHA Y and LHA of the star GACRUX at 08 h 41 m 27 s chronometer time. Given chronometer error at 0600 utc on 24th Feb 1992 = 03 m 40s fast and daily rate 4s losing.

5. Explain Small scale, Medium scale and Plan charts used on board.   **8**

6. While o·. a course of 301°(C) Var 3°W, Dev 8°E, Galle Lt. ho. Bore 000°(C) at 1200 hrs. at 1306 same Lt. ho. Bore 090°(C) Vessel still on same course. During above period current was setting 220°(T)@ 1.5 uts. Wind N'ly, Larway 2°. Find ship's position at 1306 hrs, SMG, CMG. (Ship's Engine speed 11 uts)   **10**

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

   (a)   (b)

11_5 Wk

R

(c)

(d)

(e)
10_5 Wk

(f)
3_5

(g)
Foul

(h)
35   Well

(i)
6_4

(j) 35
R
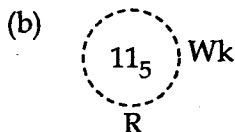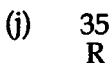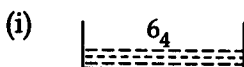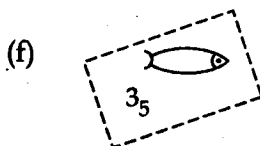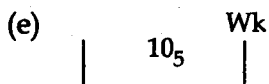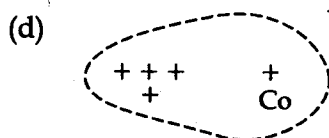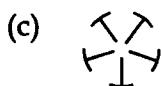
8. AT 0900 hrs., Horizontal sextant angle between Colombo Lt. ho. and Morotuwa water Tower was 60° and same time vertical sextant angle of Colombo Lt. ho. was 0° 07' (I'.E. 0° 2' on the arc). Find ship's position at 0900 hrs. (Ht. of colombo Lt. ho. to be taken from chart)   **10**