BNA-014

B.Sc (NAUTICAL SCIENCE)

01188

Term-End Examination

December, 2010

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

Time : 3 hours   *Maximum Marks : 70*

Note :   All questions are compulsory. Use of Nories Tables, Burton's Tables and Nautical Almanac is permitted where required. Use BA chart 813, Non-programmable scientific calculator is allowed.

SECTION - I

1.   Define any two of the following with sketches   5
where ever is required :

(a)   Parallax

(b)   Rational horizon

(c)   Dip

2.   Using Plane sailing formula, find the course and   10
distance from 20° 10'N   179° 40'W to 13° 40'N
178° 10'E.

3.   State Mercator sailing formula and explain when   5
& why should it be used ?

4. On 23rd Sept. 1992, in DR position 23° 36'N 161° 56'E, the sextant altitude of Sun's LL was 66° 10.6'. If I E was 2.3' on the arc and HE was 10.5m. Find the true altitude and TZD of sun.

5

5. Find LHA of star CANOPUS on 14th June 1992 PM at ship's DR position 43° 18'S 140° 11'W, when chronometer showed 07^H 28^M 52^S (Chron. Error O2^M 12^S slow).

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6. Calculate with the help of figure, the SHA of star and GHA Aries, If observers longitude is 60°E, LHAr 160° and LHA* 310°.
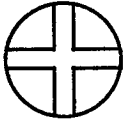
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SECTION - II
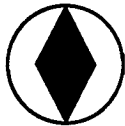
7. Define the following :-   8

   (a) Chart datum

   (b) Set & drift

   (c) Variation

   (d) Natural scale

8. What do the following chart symbols indicates :   6

   (a)

   (b)

   (c)

   (d)

   (e)

   (f)

9. (a) At 1500 hrs, whilst steering 110°(C), Point   7
De Galle Lt. Ho. bore 323°(C) and Dondra
Head Lt. Ho. bore 059°(C). Find the ship's
position at 1500hrs. (Variation 3°E)
Extract from Deviation Card.

SHIP'S HEAD	DEV
050°	2.8°E
060°	1.6°E
100°	2.3°W
110°	2.9°W
320°	2.8°E
330°	3.4°E

(b) From 1500 hrs position, find the course to   2
steer so as to pass Great Basses Reef Lt. Ho.
6.5 miles off when abeam.

(c) Find the time when Great Basses Reef Lt.   2
Ho. Will be abeam. (Speed 15knots)

10. (a) At 1900 hrs, position was found with   5
Colombo Lt. Ho. bearing 012°(T) and
Barberyn Lt bearing 140°(T). Find the ships
position.

(b) From 1900 hrs position find course to steer   5
so as to pass Point De Galle Lt. Ho. 10miles
off when abeam counteracting a current
setting 230°(T) at 2.5 knots.