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BNA-014

00821

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

December, 2012

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

Time : 3 hours *Maximum Marks : 70*

Note : *All questions are* ***compulsory.*** *Use of Norie's tables, Burtons tables and 1992 Nautical almanac is permitted. Use Ba chart 813. Non programmable scientific calculator is allowed.*

SECTION-I

1. Answer briefly in 2 to 3 lines. **10**

(a) Prime Meridian

(b) Rhumb line

(c) Standard time

(d) Greenwich Hour Angle

(e) Azimuth.

2. Using Mercator Sailing formula find the course and distance from 15° 12′ N, 165° 12′ E to 02° 05′S 175° 30′W. **5**

3. On 22 August 1992 the sextant altitude of Sun's L.L. was 28° 12′ 1 E 0°1′ off the arc. HE 20m. Find the True Zenith Distance. 5

4. The bearing of the setting Sun on 24 Feb 1992 in Lat. 20° 00′N long 060°00′ E was 261° (c). Find the compass Error. If variation was 2°E, find the deviation. 5

5. (a) Find the LHA of star canopus on 22 Sep 1992 at GMT 10^{H} 22^{m} 15^{s} in Longitude 15°22′ W. 3

(b) Define SHA of a star. 2

SECTION-II

6. Draw the following chart symbols : 10

   (a) Gas pipe line

   (b) Wreck Dangerous to surface Navigation

   (c) Oil platform

   (d) Light House

   (e) Rock awash.

7. On a vessel, Dondra Head light was bearing 340° (T) x Distance 15 miles at 1200 hours.

   (a) Find the Ship's position at 1200 hrs. 3

   (b) From this position, find true course to steer to pass Point De Galle Light House 17 miles off when abeam. 2

   (c) Find the time when Weligama Light House will be abeam. Ship's speed 14 kts. 4

   (d) At what distance will Weligama Light be abeam ? 1

8. (a) At 0900 hrs Ratmalana Light House bore 073°(T) and Borberyn Lt. Ho bore 120°(T). Find the ship's position at 0900 hrs. 3

   (b) From this position find true course to steer to pass Barleryn Light 20 miles off counter-acting a current setting (310°) (T) at 2 knots. 5

   (c) Find the speed Made Good. 2

9. Define : 2+2+1

(a) Set and Drift

(b) Leeway

(c) True Bearing

10. With the aid of a diagram prove that the altitude of the elevated pole is equal to the latitude of the observer. 5