BNA-021

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

June, 2012

BNA-021 : NAVIGATION III (NAVIGATION AND CHART WORK)

Time : 3 hours   *Maximum Marks : 70*

Note :   *(i)*   *All questions are* **compulsory.**

        (ii)   *Use of Non-programmable Scientific calculator is permitted.*

        (iii)   *Use B.A. Chart 2675 (English channel).*

        (iv)   *Tidal and luminous range /Graph to be provided by the examination centre.*

        (v)   *Nories Tables and Nautical Almanac 1992 are also* **permitted.**

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1. (a) With a suitable sketch prove that the altitude of the elevated pole is equal to observer's latitude ?   5

    (b) State conditions that are necessary for a celestial body to be circum polar.   5

2. Define any two :   5

    (a) Zenith Distance

    (b) Polar Distance

    (c) Intercept

3. In the evening of 22nd Sept 1992, a ship in DR **10** longitude 160° 12'w, found the sextant altitude of polaris to be 36°18.6' at 05^h 23^m 17^s chronometer time (error 02^m 09^s fast). If IE was 2.8' on the arc and HE was 10 m, find direction of PL and the latitude where it cuts the DR long.

4. On 19th Jan 1992, at about 1530 at ship in DR **10** 40° 16's , 175° 31'E, sextant altitude of the Sun's LL was 43° 27.4' when chronometer (Error 2^m 12^s fast) showed 03^h 50^m 12^s. If HE was 22^m and IE was 1.5' on the arc. Required the intercept and position through which to draw PL.

5. Write down twenty publications which are **10** generally available on board for passage planning.

6. What do you understand by the term "doubling **5** the angle on the bow" ? How it is used to find ship's position ?

7. From a ship at anchor following compass bearings **10** were taken :

Needles point Lt. Ho   :   329° (c)

St. Catherine Lt. Ho   :   001° (c)

Nab Tr. Lt Ho.   :   041° (c)

Find ship's position and compass error.

8. Find the time at which there will be 7 meters of **10** water in the afternoon of 27th April on a shoal patch off Darwin where chart shows 3 meters depth.

Extract from ATT :

	Time	Ht
27	0550	6.6 m
THU	1157	2.5 m
	1743	6.3 m