

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

December, 2013

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

Time : 3 hours

Maximum Marks : 70

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- Note :**
1. *All questions are **compulsory**. Use of non programmable scientific calculator is **allowed**.*
 2. *Use BA chart 2675 (English channel).*
 3. *Tidal curve graph to be provided by examination centre.*
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SECTION - I

1. Explain the following phenomenon :
 - (a) Solar eclipse. 5
 - (b) Venus is visible only in the morning or evenings. 5

2. Explain how the clocks are advanced or retarded at sea with change of longitude. 5

3. On 15th June AM at ship in DR 33°05'N 146°24.0' W the sextant altitude of Sun's L.L. was 31° 23.0' at GMT 17h 20m 13s. Find the longitude in which the position line cuts the DR. Latitude. Also state the direction of the PL. Given I.E 1.3' off the Arc. HE = 28m. 10

4. On 14th June 1992, at a ship in DR 44°35' N 102° 25' E, The Sextant Altitude of the Sun's L.L. at meridian passage was 69°30'. Given I.E. = 2.5' off the Arc, H.E. = 35m. Find the latitude of the observer. 10

SECTION - II

5. A vessel was steering 239°(T) at 12 kts, at 0930 hrs Lizard point Lt.Ho. bore 321°(T) and at 1010 hrs it bore 358°(T). During this period current was setting 307°(T)X 3.8 kts. Find course made good, speed made good and position of vessel at 1010 hrs. 10
6. From a vessel steering 084°(G) at 12kts. 10
- (a) Position at 2000 hrs was found with casquets lt. brg 189°(G) and Aldernay lt. Org. 143°(G) Find ship's position.
- (b) The vessel continued on this course and she experienced a current setting 016°(T) at 3 kts. and southerly Gale winds caused leeway of 6°. Find course and speed made good.
- (c) Calculate the time and distance off when Ptc. De Barflem Lt. will be abram. Engine speed = 12kts, GE : NIL
7. Find the height of tide at Darwin (Australia) at 1805 hrs. standard time on 20th January. The extracts from the tide tables are given below : 10

Extracts From

A.T.T.

20 th Jan	TIME	HEIGHT
	0250	2.0 m
	0830	6.6m
	1436	1.2m
	2105	7.5m

8. Explain the following terms using appropriate diagram : 5
- (a) Chart datum
 - (b) Under keel clearance
 - (c) Height of tide
 - (d) Isolated danger mark
 - (e) Traffic lane
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