

B.Sc. (NAUTICAL SCIENCE)**Term-End Examination**

June, 2011

00724

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 curve diag./Graph to be provided by the examination centre.*

SECTION - I

1. Differentiate and Explain the following : 10
(a) Inferior and Superior planets
(b) Aphelion and Perihelion
(c) Conjunction and opposition of planets
(d) Equinoxes and Solstices.
2. On 19th Jan 1992 pm, at ship in DR40°16's 10
175° 31'E, the sextant Altitude of the sun' LL was
43° 24.3' when the chronometer (Error 02^m 28^s
slow) showed 03^h45^m32^s. If I.E. of sextant was
1.2' off the arc and H.E. was 20 m, Find the
direction of the PL and a position through which
it passes.

3. On 30th April 1992, an observation of POLARIS gave sextant Altitude of $25^{\circ} 10.6'$, I.E $1.6'$ on the arc, H.E. 18m at GMT $17^{\text{h}}15^{\text{m}}42^{\text{s}}$. If DR Longitude was $031^{\circ}10'E$, find the latitude and the direction of the PL. If the Gyro bearing was $001^{\circ}(G)$ find the Gyro Error. **10**
4. Explain why VENUS is visible either as morning or evening planet ? **5**

SECTION - II

5. At 1000 Hrs., a vessel of speed 14 kts, steering a course of $065^{\circ}(T)$ observes Eddystone Rock Lt. bearing North at a distance of 11 miles. She maintained her course and speed. At 1130 Hrs. she observed start point Light bearing $354^{\circ}(T)$ at a distance of 8 miles If the wind is northerly causing Leeway of 5° , 10
- (a) Calculate the current direction and rate.
- (b) From 1130 Hrs position, find out the true course to steer to pass 10 miles off Bill of Portland Light if the wind and current remaining the same. (ship's speed 14 kts)
6. From a ship at anchor, the following compass bearings were observed : 10
- Casquets Lt. HO. $059^{\circ}(C)$
Les Hanois Lt. HO. $106^{\circ}(C)$
Roches Douvres Lt. HO. $168^{\circ}(C)$
- Find the ship's position and the deviation of the compass, if the variation was $3^{\circ}E$.
7. Find the earliest time on the 17th June, a vessel off BOSTON, drawing 4.1 metres will be able to cross a bar marked 2.5 metres, with a clearance of 1.0 metre under her keel. The extracts from A.T.T. are given below : 10

Extracts from A.T.T		
	Time	Height
16 th Fri	0229	3.1m
	0848	- 0.1m
	1508	2.9m
	2109	0.2m
17 th Sat.	0325	3.0m
	0939	0.0m
	1601	2.8m
	2205	0.3m

8. List out advantages of ECDIS over conventional paper charts. What are the factors to be borne in mind while using ECDIS ?

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