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BNA-021

B.Sc. (NAUTICAL SCIENCE)

Term-End Examination

June, 2015

00518

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 BA Chart 2675 (English Channel).*

(iv) *Tidal Luminous Range Graph to be provided by the Examination Centre.*

(v) *Norries / Burtons Tables and selected pages of 1992 Nautical Almanac are allowed.*

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1. Explain with sketch :

(a) Why stars rise, culminate and set 4 minutes earlier each day ? *5*

(b) Various types of Lunar Eclipses and conditions necessary for Lunar Eclipse to occur. *5*

2. On 13^{th} Sept 1992, at ship in DR 37°26′N, 072°46′E, the pole star bore 350° Ⓒ at GMT 16^{h} 09^{m} 06^{s}. If variation was 10°E, find the deviation of compass. *10*

3. On 29th Nov. 1992, at ship in DR 26°27′N, 130°27′W, sextant altitude of the Sun's UL East of meridian was 28°11′ when GMT was $17^h\ 47^m\ 49^s$. If IE was 2·3′ off the arc and HE 10 m, find the longitude and direction of P.L. *15*

4. Explain how you will carry out passage planning. *10*

5. From a ship at anchor following compass bearings were observed : *10*

   (i) Needle Pt Lt. Ho. : 329°(C)

   (ii) St. Catherine Lt. Ho. : 001°(C)

   (iii) Nab Tower Lt. Ho. : 041° (C)

   Find the ship's position and deviation of compass, if variation was 2°E.

6. (a) At 1400 hrs Les Triagos Lt. Ho. bore 167°(T) × 12 miles off by radar. Find ship's position. From the above position find Gyro course to set to a position with Les Hanois Lt. Ho. bearing 180°(T) × 8 miles off, counteracting a current setting 288° (T) × 3 kts. Wind NNW, Leeway 3°, Ship's speed 14 kts.GE : 2°(H) *10*

   (b) Find the time, true brg. and distance off when Les Roches Douvres Lt. will be raised. HE : 20 m, Ht of Roches Lt. Ho. : 42 mtrs. *5*