

**B.Sc. (NAUTICAL SCIENCE)****Term-End Examination****December, 2015****BNA-021 : NAVIGATION III (NAVIGATION AND  
CHART WORK)***Time : 3 hours**Maximum Marks : 70***Note :**

- (i) *All questions are compulsory.*
- (ii) *Use of Nories/Burtons tables, 1992 Nautical Almanac, non-programmable scientific calculator is permitted.*
- (iii) *Tidal and Luminous Range graph may be provided by the exam centre.*
- (iv) *Use BA chart 2675 (English Channel).*

1. Write short notes on any *two* of the following : 5+5

- (a) True Altitude
- (b) Inferior Planet
- (c) Prime Vertical

2. On 1<sup>st</sup> Sept 1992, DR equator, 50°27' E, sextant meridian altitude of Sun's UL was 82°10'4". If IE was 2'4" on the arc, HE 17 m, find the latitude of observer and P.L.

10

3. On 19<sup>th</sup> Jan 1992, PM at ship in DR 40°16' S, 175°31' E, the sextant altitude of Sun's LL was 43°27.4' at 03 h 48 m 00 s GMT. If HE was 22 m, IE was 1.5' on the arc, find the direction of P.L. and draw the position from where to draw by Intercept method. 15
4. With a suitable sketch show how the altitude of Polaris is equal to the approximate latitude of an observer in the Earth's Northern hemisphere. 5
5. Define the following and state how you will find them on your ship : 10
- (a) Geographical Range
- (b) Luminous Range
6. (a) At 1300 hrs Channel Light vessel bore 355°  $\odot$  and the distance by radar was 3 NM. Find the ship's position. 2
- (b) From 1300 hrs position find gyro course to pass EC-2 buoy 4 NM off on port side. 3
- (c) While on the above course, at 1600 hrs GPS showed 49°58' N, 001°58' W. Find the set and drift experienced by the ship. [GE for all parts 2°  $\odot$ ] 5

7. Write down the ten publications you will consult during the execution of passage plan. 5

8. Find the height of tide and depth of water on 2<sup>nd</sup> March at a position off Singapore where charted depth is 4 metres.

Extract from A.T.T. for the day is given below : 5

Zone Time – 0730	
Time	Height (m)
0014	2.7
0603	0.8
1209	2.9
1830	0.6

---