

# Indian Maritime University

( A Central University, Govt of India)

May-June 2018 End Semester Examinations

## B Sc (Nautical Science)

Semester-III

### Navigation (Terrestrial navigation and Voyage Planning) PAPER - II

(UG21T2207)

Duration: 3 Hrs

Max Marks: 70 Marks

Date: 19.06.2018

Pass Marks: 35 Marks

Note: Non Programmable Scientific Calculator is permitted.

Draw Sketches wherever required.

Norie's table and Nautical Almanac is permitted.

#### **SECTION A (TERRESTRIAL NAVIGATION)**

Marks: 30

**Note:** Answer any three questions from this section. All questions carry equal marks

1. Write short notes on:

5x2=10

(a) Observed Position

(b) Leeway

(c) Luminous Range

(d) Set and Drift

(e) Position Line

2. From noon of 12<sup>th</sup> March a ship in DR position  $06^{\circ} 30' N 072^{\circ} 00' E$  traverses the following during the next 24 hours.

From	To	Gyro course	Distance by Log
1200	1800	$036^{\circ}$	73 M
1800	0100	$038^{\circ}$	89 M
0100	0600	$040^{\circ}$	75 M
0600	1200	$041^{\circ}$	70 M

Gyro error was 1 low .find the position arrived on 13<sup>th</sup> noon.

(10)

3. With the help of a diagram explain the principle of a sextant. (10)

4. Write in detail all the errors of Sextant. (10)

**SECTION –B**  
**VOYAGE PLANNING**

Answer any four questions each carries equal marks 40MARKS

5. Explain the following: 5X2=10
- a. Height Contour
  - b. Depth contour
  - c. Nature of Sea bottom
  - d. Leading light
  - e. Chart Datum

6. From vessel steering 270 deg (T), at 1830 hrs Royal Sovereign Lt vessel bore 044 deg(T) and Beachy Head Light bore 337 deg(T).Find the ships position.

From the position obtained at 1830 hrs,find the true course to steer to pass St Catherine Point Light 8 miles off when abeam to starboard.

Find the time when St Catherine Pt Light will be abeam ,if the ships speed was 12 knots?

7. At 2000 hrs the compass bearings were observed:

Casquet's Lighthouse	061° ( C )
Les Hanois Lighthouse	112° ( C )
Roches Douvres Lighthouse	173° ( C )

Find the ship's position at 2000 hrs and the deviation of the compass for the ship's head if variation was 2° E. 10 Marks

8. a.What are the leading lights and list its advantages. 2x5=10  
b. What are T & P notices?

9. Write short notes on the following. 2x5=10
- a. Chart folio system
  - b. Nominal range of a light house.

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