

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2022

Programme Name: DNS

Semester: 2

Subject Code: UD11T5201

Subject Name: Navigation III Navigation and Chartwork

Date: 12.12.2022	Max Marks: 70
Duration: 03 Hours	Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Scientific Calculator is permitted.
- (iii) (Norrie's Table, Nautical Almanac, permitted)

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each

1. In which volume Of Admiralty List of Radio Signals (ALRS) the Information on ' Maritime safety & information System ' is available?

- A)IV
- B)III-
- C)II
- D)V

2. The summer solstice in northern hemisphere occurs somewhere closer to the date

- A)22 June
- B)21 March
- C)22 December
- D)23 September

3. During which voyage plan phase the navigating officer plots the track berth to berth on the charts.

- A) Monitoring
- B) Execution
- C) Appraisal
- D) Planning

4. The earth is farthest to the sun at

- A) Perigee
- B) Apogee
- C) Perihelion
- D) Aphelion

5. Drying height is measured from

- A) Mean high water spring
- B) Mean sea level
- C) Chart datum
- D) Highest Astronomical tide

6. Which is one of the sides of the PZX triangle

- A) Altitude
- B) Polar distance
- A) Latitude
- D) declination

7. The buoy having one red cylinder as top mark, refers to

- A) Cardinal mark
- B) Safe water mark
- C) Special mark
- D) Lateral mark

8. The great circle , every point on it is 90 degrees from Zenith is called

- A) Rational horizon
- B) Visible horizon
- C) Equinoctial
- D) Sensible horizon

9. The ZT for LMT 1040 at longitude 145deg W is

- A) 1100
- B) 1020
- C) 1000
- D) 1120

10. Horizontal movement of water due to tide raising force is

- A) Tidal stream
- B) Eddies
- C) Current
- D) set

Section B

Five Questions of 02 Marks each.

11. Calculate the GP in the following case: Celestial Body Sun

Date 4th March 2008 and GMT 23h 14m 44s.

12. Define Set and Drift .

13. Define Geographical range of light.

14. Define Amplitude of a celestial body.

15. LMT- 30d 5h 9m 50s and Long- 076°16' W, Calculate the GMT

Section C

Answer all the questions. (10 Marks Each)

16. Find the Initial course and Distance from $69^{\circ} 30.0'N$ $060^{\circ} 50.0'E$ to $44^{\circ} 40.0'N$ $120^{\circ} 20.0'E$

17. Explain what is meant by the term 'Quality of Data (CATZOC)' on an ENC.

What are the various CATZOC categories –and State the depth accuracy

& position accuracy associated with each CATZOC value, Along with the ECDIS symbols.

18. On 22nd Sept 2008, PM at ship in DR $48^{\circ} 20'N$ $085^{\circ} 40'E$, the sextant altitude of the sun's UL was $20^{\circ} 04.9'$ when the GPS clock showed 10h 09m 38s. If IE was 2.2' on the arc & HE was 25m, find the direction of the LOP and the longitude where it cuts the DR latitude.

19. Define & draw neat labelled diagram indicating the following:

Chart Datum, Drying Height, MHWS, MHW, MLWS, MLWN.

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A) Find the SMT of Sunrise for an observer in Latitude $40^{\circ}00'S$ Longitude $56^{\circ} 30'W$ on 4th MARCH 2008 (Zone +03).

B) Define Greenwich hour angle (GHA) and Local Hour Angle (LHA)