Indian Maritime University

(A Central University, Govt of India)

Model Examinations – 2025

Programme Name: B.Sc. (NS)

Semester: III

Subject Code: UG21T6305

Subject Name: Celestial Navigation

Date: 10.11.2025 Max Marks: 70

Duration: 03 Hrs Pass Marks: 35

(i) All Sections (A, B & C) are to be attempted.
(ii) Options are specified in respective section.

Section A 10 question 1 mark each

1. Azimuth & Altitude of a celestial body is known as --------
2. Obliquity of Ecliptic is ------
3. LHA of a Celestial body would be 180° when the body is on the observer's -----
4. A new day starts over a place when the ----- is over the ------ of that place
5. An Inferior planet can never be in ---------- &--------
6. Duration of Daylight/darkness over a place depends upon --------
7. Azimuth of a cel. body on the Observer's Prime vertical circle(East) would be ------
8. Sidereal Period of moon is ------
9. 'v' corrections are applied with -------
10. Observer on earth within divided umbra shadow will experience --------

Section B Five Questions of 02 Marks each

11. Find the GP of SUN on 19th JAN.2008 @ 1030Hr. GMT
12. Find the GMT if the Sun is over the meridian of an observer at 67°30'W
13. Explain kepler's 2nd law of planetary motion.

14. Show by a neat diagram that if the declination of sun is 0° then latitude of an Observer is equivalent to the meridional zenith distance of the sun.

15. Explain 12th time zone by a suitable diagram.

Section C 10 marks each

16.

A) What could be the consequence if the spin axis of the earth would have been at 90° with the orbital plane of the earth?

B) Describe 'Winter solstice' with the daylight & darkness conditions at various places on the earth.

17.

A) Find the LHA ♈, If GHA ♈ = 185° 36′ & Long of an Observer is 175° 24′E; Also find the LHA of a star if at that time, the SHA of Star is 225° 30′.

B) Explain Zone Time . A ship is in 139°30′E and sailing easterly direction. Find the time on board ship would be If the time then is 0930hr.GMT

18

A) Show by a diagram True Altitude = Apparent altitude + parallax in altitude

B) On 5th May 2008, the sextant Alt. of the Sun's Upper limb was 56° 11.4′. If the Index error of the sextant was 2.8′ off the arc & the height of eye was 12m, find the True Alt. & TZD

19.

On 1st May. 2008, in DR 179° 58′E, the observed Altitude of the sun's LL on the meridian was 65° 35.9′ South of the observer .If HE was 25m, find the latitude & state the direction of the LOP.

20. Show the following on the plane of ORH

Lat. Of Obs. = 45°N Decl. of CB = 15° N & Az = S45°E .If the Altitude of the CB is then 55° , Complete the Δ PZX. Identify & measure its sides.