INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
END SEMESTER EXAMINATIONS- DECEMBER 2018
B.Sc. (Nautical Science)
SEMESTER-III
Celestial Navigation Paper – I(UG11T3301)

Date:26-12-2018 Maximum Marks: 70
Time: 3Hrs Pass Marks: 35

Note:Question No. 1 is compulsory.
Answer any 6 questions from remaining 8 questions(each of 10 marks).
Non Programmable Scientific Calculator is permitted if required.

Q1. Define the following terms : -

(a) Equinoctial
(b) Summer Solstice
(c) SHA
(d) Sensible Horizon
(e) Prime Vertical Circle. (2x5 = 10 marks)

Q2. (a) What do you understand by the term Geographical Position of a heavenly body? what are the coordinates used to specify the G.P. ? (5 marks)

(b) The planet Venus was on the meridian of an observer in longitude 62°E. If the RA of Venus at that instant was 87°, find the GHA of a star, SHA of which then was 162° (5 marks)

Q3.Discuss Kepler's Second Law and draw figure to support your answer. (7+3 = 10 marks)

Q4. Explain Sidereal & Synodic periods of the Moon. (10 marks)

Q5. (a) Define "Mean Sun" and "Dynamical Mean Sun" (5 marks)
(b) Find GMT, when LMT in Longitude 125° 30′ E was 5d 03h 15m 04s. (5 marks)

Q6. Describe the method of obtaining the Index Error of sextant by using the sun. If when doing so the two reading so obtained were 35.7′ ON the arc, and 28.3′ OFF the arc. What is the Index error of the Sextant and what is the S.D. of the Sun. (10 marks)

Q7. State the optical principle of the Sextant and show that Sextant measures double the angle though which the Index Bar is moved. (10 marks)

Q8. On 1st September 2008, DR, Equator, longitude 50° 27′E, the sextant Meridian altitude of the Sun's UL was 82° 10.4′. If IE was 2.4′ ON the arc and HE was 17m, findout the latitude and the LOP. (10 marks)

Q9. Draw figure and show the following :-

(a) Observer's Rational Horizon.
(b) True Altitude.
(c) Zenith Distance.
(d) Azimuth of the celestial body.
(e) Amplitude. (10 marks)

****