LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION –**MATHEMATICS**

THIRD SEMESTER – **APRIL 2018**

MT 3502– ASTRONOMY

Date: 07-05-2018 Dept. No. Max. : 100 Marks

Time: 01:00-04:00

PART-A

Answer ALL the questions **(10 x 2=20)**

1. Define celestial equator and celestial horizon.
2. Define Zenith and Nadir.
3. Define Aberration of celestial body.
4. What is chronometer?
5. State Kepler's law of planetary motion.
6. Write a short note on Julian Calendar .
7. Define harvest moon.
8. What is epact of the year 1952?
9. Define umbra and penumbra.
10. Give the diameter of the planets Uranus and Saturn.

PART - B

Answer any FIVE questions: **(5 X 8 = 40)**

11. i) Find the longitude of the sun on any day.

    ii) Find the relation between right ascension and longitude of the sun.

12. Trace the variation in the duration of day and night for the places on the Artic circle and North Frigid zone.
13. Derive the tangent formula for refraction.
14. Find the effect of aberration on the longitude and latitude of a star.
15. What are astronomical seasons? Calculate their lengths.
16. Write a note on formulation of calendar.
17. Find the maximum and minimum number of eclipses possible near a node.

18. Write a notes on comets.

PART – C

Answer any TWO questions: **(2 x 20=40)**

19. (a) Explain the four system of celestial coordinates.

(b) Find the duration of twilight when it is shortest.

20. (a) Find the Cassini's formula for refraction.

(b) Explain any one astronomical instrument with neat diagram.

21. (a) Discuss the successive phases of moon with a neat diagram.

(b) Find the maximum number of eclipses possible in a year.

22. (a) Find the Newton's deduction from the law of Keplar.

(b) Explain how solar and lunar eclipses are caused.

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