LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **NOVEMBER 2017**

MT 3502 – ASTRONOMY

Date: 07-11-2017 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART-A

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

1. Define visible and invisible hemisphere.
2. Define Zenith and Nadir.
3. Define parallax of a body.
4. What is sundial?
5. Define sidereal year.
6. Define aphelion.
7. Define synodic month.
8. Define waxing and waning.
9. Define chromosphere.
10. What are the chief elements present in the sun?

PART - B

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

11. Write a note on the ecliptic system of coordinates to find the position of any body in the celestial sphere.

12. Trace the variation in the length of the day at a place in the north Torrid Zone in the course of a year.

13. Derive the tangent formula for refraction.

14. Write a note on Julian calendar.

15. Write a note on constellations.

16. Explain about the surface structure of moon.

17. Find the maximum number of eclipses in a year.

18. Write a note on comets.

PART - C

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

19. (a) Define twilight and derive an expression to find the duration of twilight.

    (b) Explain the different zones of earth with a diagram.

20. (a) Find the effect of refraction on any small arc.

    (b) Derive Cassini's formula.

21. (a) Discuss the different phases of moon using formula.

    (b) Find the angular radius of the cross section of the shadow where the moon enters.

22. (a) Obtain Newton's deductions from Kepler's laws.

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

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