



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – MATHEMATICS

THIRD SEMESTER – APRIL 2017

MT 3502- ASTRONOMY

Date: 03-05-2017
09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

ANSWER ALL THE QUESTIONS

(10 x 2 = 20)

1. Define colunar and antipodal triangles.
2. Define Zenith and Nadir.
3. Define Astronomical refraction.
4. Define parallax of a body.
5. Define aphelion.
6. Define dynamical mean sun.
7. What is conjunction?
8. What are the three types of lunar librations?
9. What is a comet?
10. What is a shooting star?

PART – B

ANSWER ANY FIVE QUESTIONS

(5 x 8 = 40)

11. Write a note on the equatorial system of coordinates.
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. What are the astronomical seasons? Find their duration.
16. Explain surface structure of moon.
17. Find the maximum and minimum number of eclipses in a year.
18. Calculate the eccentricity of the earth's orbit around the sun.

PART – C

ANSWER ANY TWO QUESTIONS

(2x 20 = 40)

19. (a) Define twilight. Find the duration of twilight.
(b) Explain the zones of earth with a diagram. **(10+10)**
20. (a) Find the effect of refraction on any small arc.
(b) Derive Cassini's formula. **(10+10)**
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. **(12+8)**
22. (a) Obtain Newton's deductions from Kepler's laws.
(b) Find the elongations of the planets when they are stationary as seen from each other. **(10+10)**