

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – MATHEMATICS

THIRD SEMESTER – APRIL 2016

MT 3502/MT 5503 – ASTRONOMY

Date: 02-05-2016

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

PART – A

ANSWER ALL QUESTIONS

(10 x 2 = 20)

1. Define sidereal day.
2. What is a circumpolar star.
3. Define aberration of light.
4. State the laws of refraction.
5. State Kepler's laws of planetary motion.
6. What is dynamical mean sun? Why is it introduced?
7. Define age of moon.
8. How is lunar eclipse caused?
9. What are meteors and asteroids?
10. Name any two constellations visible over Chennai.

PART – B

ANSWER ANY FIVE QUESTIONS.

(5 x 8 = 40)

11. Describe the ecliptic system of celestial coordinates.
12. Trace the variations in the duration of day and night during a year for a place of latitude 18N.
13. Derive the tangent formula for refraction.
14. Describe the equatorial.
15. Write a note on astronomical seasons.
16. Derive a formula for the phase of moon.
17. Derive the condition for the occurrence of a lunar eclipse.
18. Write a note of sun and features observed on the surface of sun.

PART – C

ANSWER ANY TWO QUESTIONS.

(2 x 20 = 40)

19. a. Describe the phenomenon of twilight. How do we calculate the duration of twilight at a particular place. (10+10 marks)
b. Define sidereal time, right ascension and hour angle. Obtain the relation among them.
20. a. Derive Cassini's formula for refraction.
b. Describe the sundial with appropriate diagrams. (10+10 marks)
21. a. Describe the surface structure of moon. (10+10 marks)
b. Find the maximum and minimum number of eclipses possible in a year.
22. a. Derive a formula for equation of time and show that it vanishes four times in a year.
b. Write a note on comets. (15+5 marks)

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