

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



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

**FOURTH SEMESTER – APRIL 2023**

**UMT 4602 – ASTRONOMY**

Date: 06-05-2023

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

**PART – A**

Answer **ALL** the Questions:

(10×2=20 marks)

1. What are secondaries?
2. Define celestial horizon.
3. Define astronomical refraction.
4. What is the duration of a tropical year?
5. Define opposition in moon.
6. Why don't we have eclipses once in 24 days?
7. What are circumpolar stars?
8. State Bode's law.
9. What are constellations?
10. Name any two astronomers.

**PART – B**

Answer any **FIVE** of the following:

(8×5=40 marks)

11. Prove that latitude of a place is equal to the altitude of an observer.
12. Briefly explain First point of Aries and First point of Libra.
13. Derive tangential formula for refraction.
14. Derive the expression for eccentricity of earth's orbit around the sun.
15. Define and derive an expression for Dip of Horizon.
16. Explain the Big bang theory.
17. Write notes on Comets.
18. List any four-zodiac constellations and explain them.

**PART – C**

Answer any **TWO** of the following:

(2×20=40 marks)

19. Draw a neat diagram of the four coordinate systems to fix a position of any celestial body.
20. a) Explain in detail about the Newton's deduction from Kepler's laws.  
b) Derive Cassini's formula for tangential refraction. (10+10)
21. Explain Solar and Lunar eclipses with a diagram.
22. a) Explain the principles of a telescope.  
b) Write a short note on Variable Stars. (10+10)

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