LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **NOVEMBER 2016**

MT 3502/MT 5503 – ASTRONOMY

Date: 08-11-2016   Dept. No. [ ]   Max. : 100 Marks
Time: 09:00-12:00

Section-A

Answer ALL questions   (10x2 =20marks)

1. Define first point of Aries and first point of Libra.
2. What is meant by a circumpolar star?
3. Define parallax of a body.
4. What is Sundial?
5. State Kepler's laws of planetary motion.
6. Given mean time at a place is 5h 12m 20s p.m. and the equation of time is 5m 25s.
   Find the apparent time.
7. What is meant by conjunction?
8. Define harvest moon.
9. What is called Trojan group?
10. Define comets.

Section-B   (5x8=40marks)

Answer any FIVE questions .Each question carries EIGHT marks.

11. Write a note on the ecliptic system of co-ordinates.
12. Trace the variations in the duration of day and night in a place of latitude 18N.
13. Derive the tangent formula for refraction.
14. Write a note on Julian calendar.
15. Describe various phases of the moon during a lunation.
16. Give a brief description of the surface structure of moon.
17. Describe ay two planets of the solar system.
18. Write a note on constellations.

Section-C   (2x20=40marks)

Answer any TWO questions

19. a) Define twilight and derive an expression to find the duration of twilight.
    b) Explain the different zones of earth with a neat diagram.

20. a) Define geocentric parallax. What is its effect on a heavenly body?
    b) Describe sextant with a neat diagram and explain the principle involved in the construction.

21. a) Prove that the equation of time vanishes four times in a year.
    b) Find the maximum number of eclipses possible in a year.

22. a) Explain how lunar and solar eclipses are caused.
    b) Describe the changes in the elongation and phases of an inferior planet.

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