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

	SECTION A - K1 (CO1)
	Answer ALL the Questions **(10 x 1 = 10)**
1.	**Answer the following**
a)	Define Zenith and Nadir.
b)	What do you mean by refraction?
c)	Describe the duration of a sidereal month.
d)	Recall about binary stars.
e)	Name any three astronomers.
2.	**Fill in the blanks**
a)	_____ is a science dealing with the celestial bodies.
b)	The angle subtended at the body by any two positions of observation is called _____ of the body.
c)	The difference between the longitudes of the sun and the moon is called _____.
d)	The Planck's time is estimated to be _____.
e)	The abbreviation IAU stands for_____.
	SECTION A - K2 (CO1)
	Answer ALL the Questions **(10 x 1 = 10)**
3.	**MCQ**
a)	The point at which the sun crosses the equator while entering the northern hemisphere in its first annual motion is called as _____. (i) Autumnal equinox (ii) Vernel equinox (iii) Summer solstice (iv) Winter solstice
b)	The position of the sun in its apparent orbit nearest to the earth is called _____. (i) Perigee (ii) Apogee (iii) Perihelion (iv) Aphelion
c)	The Gregorian calender was constructed in the year _____. (i) 1682 A.D (ii)1582 A.D (iii) 1752 A.D (iv) 1652 A.D
d)	_____ is created in stars through nuclear fusion. (i) Deuterium (ii) Helium (iii) Nucleons (iv) Leptons
e)	_____ constellation is considered a s a heavenly altar upon which the gods pledged before their battle with Titans. (i) Andromeda (ii) Ara (iii) Aquila (iv) Aries
4.	**True or False**
a)	A circle has infinite number of secondaries.
b)	The incident ray, refracted ray and the normal at the point of incidence are all not in the same plane.
c)	The event of new moon occurs when the moon is in opposition with the sun.

d)	The expanding universe justifies the big bang theory.
e)	The brightest star in the sky is of magnitude -1.5.
SECTION B - K3 (CO2)	
	Answer any TWO of the following (2 x 10 = 20)
5.	Calculate the effect of aberration on the latitude of a star.
6.	Explain about big bang theory and examine the evidences of the same.
7.	Define Dip of the horizon and compute its expression.
8.	Articulate about different phases of moon.
SECTION C – K4 (CO3)	
	Answer any TWO of the following (2 x 10 = 20)
9.	Analyze the origin and existence of solar system in detail.
10.	Criticize the tangential formula for refraction.
11.	Explain about star charts and ways to read them.
12.	Discriminate the Julian and Gregorian system of calendars.
SECTION D – K5 (CO4)	
	Answer any ONE of the following (1 x 20 = 20)
13.	Defend various Newton's deductions derived from Kepler's laws**.**
14.	Summarize about solar and lunar eclipses.
SECTION E – K6 (CO5)	
	Answer any ONE of the following (1 x 20 = 20)
15.	Compile the different celestial co-ordinate systems that are employed to fix the position of a body in the celestial sphere**.**
16.	List down the different types of telescopes and negotiate their working procedures with their corresponding merits and demerits.

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