LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **PHYSICS**

FOURTH SEMESTER – **APRIL 2022**

UPH 4601 – ASTRONOMY AND ASTROPHYSICS

Date: 23-06-2022 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A

Q. No **Answer ALL questions** **(10 x 2 = 20 Marks)**

1 What is sidereal day?

2 Mention at least four bright stars which are visible in the night sky at your place.

3 Mention the various celestial coordinate systems.

4 The absolute magnitude of the star is M = -2 and apparent magnitude of the star is m= 8. What is its distance from the earth?

5 Define luminosity and mention its unit.

6 Define the resolving power of a telescope.

7 The nearest star Proxima centauri has parallax p = 0.76 arc sec. Find its distance from earth in parsec.

8 What are binary stars?

9 State Hubble's law.

10 What is dark matter?

PART – B

Answer any FOUR questions **(4x7.5 = 30 Marks)**

11 Describe the i) apparent motion of celestial objects, ii) solar and sidereal Days, iii) light year in terms of kilometre and iv) equinoxes and solstices.

12 Classify the various types of telescopes.

13 Explain the zones and seasons of earth with the help of earth's revolution.

14 Give a detailed note on (a) Life cycle of the star (b) HR diagram

15 Discuss the various types of binary stars.

16 List the properties of each galaxy.

PART – C

Answer any FOUR questions **(4 x12.5 = 50 Marks)**

17 Discuss the (a) Equatorial coordinate system (b) Altazimuth (Horizontal) (c) ecliptic coordinate system (d) Galactic coordinate system in astronomy.

18 Write in detail the Charge Coupled Device (CCD) in the camera of a telescope

19 Give a detailed note on our Milky Way galaxy.

20 Explain Morgan Keenan classification of stars.

21 Describe (a) apparent magnitudes (b) extinction and optical thickness (c) absolute magnitudes (d) blackbody model of star.

22 Explain red shift and blue shift.

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