

Reg. No. :

Name :

Fifth Semester B.Sc. Degree Examination, December 2022

First Degree Programme under CBCSS

Physics

Open Course

PY 1551.2 – ASTRONOMY AND ASTROPHYSICS

(2018 Admission onwards)

Time : 3 Hours

Max. Marks : 80

SECTION A

Very Short Answer.

Answer all questions. Each carries 1 mark.

1. Write down any two examples of Constellations.
2. Define absolute magnitude of a star.
3. Name Gas giants in solar system.
4. What are epicycles in Ptolemaic model?
5. Who proposed the General relativity theory?
6. What is the process by which energy is produced in Sun?
7. What is the name of the region on the H-R diagram where most of the stars are located?

8. What are sun spots?
9. What is the name of our galaxy?
10. What is a black hole?

(10 × 1 = 10 Marks)

SECTION B

Short Answer.

Answer any **eight** questions. Each carries **2** marks.

11. Write a short note on stellar magnitudes.
12. What is meant by precession of earth axis?
13. What is meant by solar flare?
14. Why do stars have different colors in night sky?
15. How do we plot HR diagram?
16. Which is the hottest planet in the solar system? Explain.
17. Why does Saturn have a ring system?
18. What is Halley's Comet?
19. Write a short note on size and surface temperature of sun.
20. What is meant by an equinox?
21. What is the role of carbon dioxide in earth's atmosphere?
22. Briefly explain general theory of relativity.
23. What is the Asteroid belt?
24. What is the fate of a sun-like star?
25. What are Neutron stars?
26. Why Newton's law of Gravitation is called a universal law?

(8 × 2 = 16 Marks)

SECTION C

Answer any **six** questions. Each question carries **4** marks.

27. How was Ptolemy's model of Universe disproved? What was important about the Copernican theory?
28. State and explain Newton's Universal law of gravity.
29. Distinguish between Comets and Meteorites.
30. Comment on the contribution of Galileo and Tycho Brahe in the field of astronomy.
31. Explain Nebular hypothesis of formation of solar system.
32. Why does the moon cause tides and not sun?
33. Briefly explain special theory of relativity.
34. Arrange the following celestial objects in the increasing order of apparent magnitude :
 - (a) full moon
 - (b) Sirius
 - (c) Sun
 - (d) Venus.
35. Explain how asteroids are formed.
36. What are terrestrial planets and ice giants?
37. Briefly explain size and structure of our galaxy.
38. Explain classification of Galaxies based on their shape.

(6 × 4 = 24 Marks)

SECTION D

Answer any **two** questions. Each question carries **15** marks.

39. Explain the concept of celestial sphere and how do we locate objects on the celestial sphere.
40. State and explain Kepler's laws of planetary motion.
41. Explain why do we have seasons on earth. Also explain why do we experience eclipses on earth.
42. Explain the stages of stellar evolution.
43. Explain physical properties and internal structure of sun. Give a general description of physical characteristics of planets in solar system.
44. Explain luminosity, color, surface temperature and spectral types of stars.

(2 × 15 = 30 Marks)