



K25U 0177

Reg. No. :

Name :

**Sixth Semester B.Sc. Degree (C.B.C.S.S. – OBE – Regular/Supplementary/
Improvement) Examination, April 2025
(2019 to 2022 Admissions)**

**DISCIPLINE SPECIFIC ELECTIVE IN PHYSICS
6B14PHY(4) : Cosmology**

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all**, **each** carries **1** mark.

1. As per the Babylonian myth, which God created Earth from her body ?
2. What is dark matter ?
3. Which aspect of gravity plays the most important role in Cosmology ?
4. If Earth becomes a black hole, its radius would be
5. Blue shift is due to
6. The point at which measurable quantities become infinite is called **(6×1=6)**

SECTION – B

Answer **any 6**, **each** carries **2** marks.

7. Give a brief description of Issac Newton's importance on the understanding of our universe.
8. What are the fundamental forces of nature ?
9. What are the twin assumptions of Cosmological principle ?
10. What is 'horizon problem' in Cosmology ?
11. What is a 'closed universe' ?
12. What is the major project of Hubble's Telescope ?
13. What is 'de Sitter effect' ?
14. On scales even larger than galaxies, not all objects are moving away from each other either. Give an example of the above statement. **(6×2=12)**

P.T.O.



SECTION – C

Answer **any 4**, **each** carries **3** marks.

15. Briefly explain the contribution of Greek Philosopher Plato to rational thinking.
16. 'We are truly in a 'Golden Age' of cosmic discovery'. Justify this statement.
17. Demonstrate an example where the principle of Euclidean geometry gets violated.
18. Briefly describe the problems with Einstein's general theory of relativity.
19. Explain the major challenges in measuring distances in cosmic scales.
20. Draw the updated Hubble's diagram by Allan Sandage and give the inferences.

(4×3=12)

SECTION – D

Answer **any 2**, **each** carries **5** marks.

21. Briefly explain Albert Einstein's contributions giving special emphasis to general theory of relativity. Discuss his mistakes in brief.
22. Write Hubble's law. Give a pictorial representation. How did he obtain this law ?
23. Describe various distance measuring techniques in Cosmology.
24. What is cosmology ? Why Newton's equations failed to deal with systems having many particles ? Briefly explain Cosmological principle.

(2×5=10)

