

(6 pages)

Reg. No. :

Code No. : 20606 E Sub. Code : ESPH 21

B.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2025.

Second Semester

Physics

Skill Enhancement Course — ASTROPHYSICS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer :

1. The limit of resolution is given by the formula

- (a) $4.5/\lambda$ sec of arc
- (b) $4/\lambda$ sec of arc
- (c) $5.5/\lambda$ sec of arc
- (d) $5/\lambda$ sec of arc

2. The aperture of the objective lens in a telescope is made large so as to

- (a) Increase the magnifying power of the telescope
- (b) Increase the resolving power of the telescope
- (c) Decrease the magnifying power of the telescope
- (d) Decrease the resolving power of the telescope

3. A small body traveling in space is called as

- (a) Meteorite
- (b) Asteroid
- (c) Waves
- (d) All of the above

4. What is Oort cloud?

- (a) A Cluster of asteroids.
- (b) A Swarm of cloud far from the sun.
- (c) The cloud that a meteoroid produce in the atmosphere.
- (d) The same as the coma of a star.

5. The Kuiper Belt in space extends roughly from orbit of the planet.
 (a) Pluto (b) Uranus
 (c) Star (d) Neptune
6. A total eclipse occurs when the observer is within the _____.
 (a) Ant umbra (b) Umbra
 (c) Penumbra (d) All the above
7. The layer of atmosphere having lowest temperature is
 (a) Stratospher (b) Troposphere
 (c) Mesospher (d) Ionospher
8. What happens to time near a black gale?
 (a) Time stands still (b) Time speeds up
 (c) Time slows down (d) Time reverses
9. Super nova is
 (a) An exploding star (b) A block hole
 (c) An asteroid (d) All the above

10. The _____ instrument discovered more than 10,000 galaxies.
 (a) Hubble space telescope
 (b) Reflecting telescope
 (c) Refracting telescope
 (d) All the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the brightness of image formed by the telescope.
 Or
 (b) Explain the working of Hubble space telescope.
12. (a) Write a short notes on: Asteroids
 Or
 (b) Explain Oort cloud.

13. (a) Explain total solar eclipse.

Or

(b) What are sun spots?

14. (a) What is white dwarf in simple words?

Or

(b) What is a galaxy cluster?

15. (a) What happens in a super Nova explosion?

Or

(b) Write a short notes on: Kuiper belt.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe all the type of reflecting telescope.

Or

(b) Describe the structure and working of radio telescope.

17. (a) How are gravitational waves detected?

Or

(b) How do you calculate planetary distances by Bode's law?

18. (a) What is an eclipse? State the four types of lunar eclipses.

Or

(b) State and explain the three parts of the solar atmosphere?

19. (a) State the classification and properties of galaxies?

Or

(b) What does the Hertzsprung-Russell diagram explain?

20. (a) Describe Neutron star.

Or

(b) Write down all recent advances in Astrophysics.