



RAN-2103000206030067

B. Sc. (Sem. - VI) Examination September - 2025
Physics (Elective - II - ID) Astrophysics - II

Time: 2 Hours]

[Total Marks: 50

સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book.
- (2) Draw neat diagrams wherever necessary.
- (3) Symbols used in the paper have their usual meaning.
- (4) Figures to the right indicate full marks of the question.
- (5) Scientific calculator may be used.

Seat No.:

--	--	--	--	--	--

Student's Signature

Q. 1. Answer the following questions in brief:

(10)

1. What is a white dwarf?
2. Which element is primarily fused in the core of the Sun?
3. What happens if a white dwarf exceeds the Chandrasekhar limit?
4. Define Kelvin contraction time.
5. Describe any two properties of black hole.
6. Define Pulsars.
7. What happened to the object approaches the Schwarzschild radius in Black Hole?
8. State Hubble's law.
9. What is cosmology?
10. 1 A. U. = _____ Km.

Q. 2. A. Answer any one the following questions in detail.

(06)

1. Write a short note on White Dwarf.
2. Discuss the mechanical and thermal equilibrium in stars.

Q. 2. B. Answer any one the following questions in brief.

(04)

1. Explain the phenomena of helium flash.
2. Draw the evolution tracks of pre-main sequence stars of different masses on the H-R diagram.

Q. 3. A. Answer any one the following questions in detail.

(06)

1. Write a short note on discovery of Pulsars.
2. Explain the concept of the event horizon in a black hole. What does it represent, and why is it significant in understanding the nature of a black hole?

Q. 3. B. Answer any one the following questions in brief.

(04)

1. With the appropriate diagram, discuss the primary pulse and secondary pulse of a typical pulsar.
2. Describe the rotating Neutron star model of Pulsars in detail.

Q. 4. A. Answer any one the following questions in detail.

(06)

1. Explain what is mean by gravitational red shift and cosmological red shift. Also explain that why the redshifts of Quasars are cosmological origin?

2. Write Optical properties of Quasars in detail.

Q. 4. B. Answer any one the following questions in brief. (04)

1. Write a short note on Active Galactic Nuclei.
2. Discuss in brief “How Quasars was discovered”.

Q. 5. A. Answer any one the following questions in detail. (06)

1. Write a short note on Cosmic Microwave Background Radiation
2. Discuss in details about the matter Density of the universe.

Q. 5. B. Answer any one the following questions in brief. (04)

1. Describe why it's important to build cosmological theories?
 2. Draw the schematic diagram model of Open, Flat and Closed Universe with explanation.
-