This question paper contains **2** printed pages]

VA—36—2024

FACULTY OF SCIENCE

B.Sc. (Third Year) (Fifth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

(CBCS/New Pattern)

PHYSICS

Paper–XIII

(Astrophysics)

(Firday, 6-12-2024) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—40

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) All questions carry equal marks.

1. Define Kepler's laws of planetary motion and obtain an expression for Kepler's second law of planetary motion. 15

Or

(*a*) Explain celestial and equatorial coordinate system. 8

(*b*) Write a short note on stellar parallax method. 7

2. Obtain an expression for Planck's law and Wien's displacement law of Black body radiation. 15

P.T.O.

Or

(*a*) Define sunspots and explain sunspot cycle. 8

(*b*) Discuss and explain Solar neutrino puzzle. 7

3. Write short notes on any *two* (each of 5 marks) : 10

(*a*) Solar limb darkening

(*b*) Radiant flux and Luminosity

(*c*) Solar eclipses

(*d*) Hour angle and mean solar time.