



RAN - 2103000205030064

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**T.Y.B.Sc. Physics (Sem. V) Examination October - 2023**

**Astrophysics - I (Elective) Paper - III**

**[ Total Marks: 50**

**સૂચના : / Instructions**

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નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.  
**Fill up strictly the details of signs on your answer book**

Name of the Examination:

T.Y.B.Sc. Physics (Sem. V)

Name of the Subject :

Astrophysics - I (Elective) Paper - III

Subject Code No.: 2103000205030064

Seat No.:

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Student's Signature

- (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.

**Q. 1**

**Answer all the following questions in brief:**

**(10)**

1. Magnifying power of telescope depends on which parameters?
2. Describe the use of faint object camera on-board Hubble Space Telescope.
3. What is the function of an eye piece in the telescope?
4. Define apparent brightness of the star.
5. What is the difference between umbra and penumbra?
6. Which lines are having highest ionization potential?
7. What is the central temperature of Sun?
8. The shorter radio emission of 1 cm mainly come from which layer of the Sun?
9. What is limb darkening?
10. Define eclipsing binary of stars.

- Q. 2 (A) Answer any one the following questions in detail. (6)**
- (1) Write a short note on Spectrophotometry.
  - (2) Discuss Hubble Space Telescopes and also describe the use of various sensor with their applications.
- Q. 2 (B) Answer any one the following questions in brief. (4)**
- (1) Compare the advantages and disadvantages of reflecting and refracting telescopes.
  - (2) Describe the Magnifying Power and the focal ratio for Optical telescopes.
- Q. 3 (A) Answer any one the following questions in detail. (6)**
- (1) What were the earlier interpretation of spectral classification of stars?
  - (2) Write a short note on absolute magnitude and distance module.
- Q. 3 (B) Answer any one the following questions in brief. (4)**
- (1) Explain the Steller magnitude sequence in brief.
  - (2) Discuss the luminosity of stars and derive the relationship between total luminosity and the effective temperature of Star.
- Q. 4 (A) Answer any one the following questions in detail. (6)**
- (1) Discuss the Solar Neutrino puzzle in details.
  - (2) Describe the theory of Sunspots in detail.
- Q. 4 (B) Answer any one the following questions in brief. (4)**
- (1) Briefly describe the Spicules, Plages and Filaments for the Sun.
  - (2) Explain outer corona or F-Corona.
- Q. 5 (A) Answer any one the following questions in detail. (6)**
- (1) Describe the mass transfer in close binary system in detail.
  - (2) Write a short note on Spectroscopic binary.
- Q. 5 (B) Answer any one the following questions in brief. (4)**
- (1) Describe the Origin of binary stars.
  - (2) Briefly explain the light curves for eclipsing binaries.