



K20U 0143

Reg. No. :

Name :

VI Semester B.Sc. Degree (CBCSS-Reg./Supple./Improv.)

Examination, April 2020

(2014 Admission Onwards)

CORE COURSE IN PHYSICS (Elective B)

6B15PHY : Astronomy and Astrophysics

Time : 3 Hours

Max. Marks : 40

Instruction : Write answers in **English** only.

SECTION – A

Answer **all**. Very short answer type. **Each** question carries **one** mark.

1. The apparent luminosity of zero magnitude star is
2. The origin chosen for ecliptic system
3. The distance of sun from earth is 1.495×10^{11} m. In terms of parsec it is
4. The name of the group served as the primary standard for the measurement of the photovisual magnitude is

SECTION – B

Answer **any seven**. Short answer type. **Each** question carries **two** marks.

5. What are solar flares ?
6. What is solar telescope ?
7. Give any four main parts of a telescope.
8. Define the term photo diffusion time.
9. Explain the visual method.
10. What is red shift ?
11. Distinguish between white dwarf and black hole.
12. What is Schwarzschild radius of a black hole ?
13. What is the relation between parsec and light year ?
14. Mention two applications of color index.

P.T.O.



SECTION – C

Answer **any four**. Short essay/ problem type. **Each** question carries **three** marks.

15. What are pulsars ? How can we detect them ?
16. With the neat Hertsprung-Russell diagram, explain the different parts of it.
17. Explain Chandrasekhar limit.
18. The parallax angle for Sirius is 0.379 degree. Find the distance to Sirius in units of
 - i) parsec
 - ii) light year
 - iii) AU
 - iv) metre
19. Obtain the relation between absolute and apparent magnitude. The apparent magnitudes of Alpha centuari and Betelgese are -0.10 and $+0.80$ respectively. Compare the brightness of these stars.
20. Using Wien's displacement law, find the temperature of an object whose black body spectrum peaks at the wavelength of
 - 1) 4000\AA and
 - 2) 6563\AA

SECTION – D

Answer **any two**. Long essay type. **Each** question carries **five** marks.

21. Explain the Harvard system of special classification and the HD catalogue.
22. Explain the following : Horizontal system, equatorial system and ecliptic system.
23. Explain the general properties and various aberrations of a telescope.
24. Explain the following : Plank's theory of Black body radiation, Doppler effect and Zeeman effect.