



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

Max. Marks : 40

Time : 3 Hours

*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  $1.495 \times 10^{11}$ 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.

## 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)  $4000\text{\AA}$  and
  - 2)  $6563\text{\AA}$

## 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.
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