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**PG CBCS**  
**M.Sc. Semester- III Examination, 2022**  
**PHYSICS**  
 PAPER: C-PHS 304  
INTRODUCTORY ASTROPHYSICS (CBCS)

**Full Marks: 40****Time: 2 Hours****GROUP-A****1. Answer any FOUR from the following questions:****4×2=8**

- a) What is the size of Milkyway?
- b) What is a celestial sphere?
- c) Define parsec.
- d) What is Astronomical Unit (AU)?
- e) The distance to Proxima Centuri is 4.246 light years. What is the corresponding distance in parsec?
- f) What are the differences between asteroids and comets?
- g) What are umbra and penumbra of a Sun spot?
- h) What are active galactic nuclei?

**GROUP-B****2. Answer any FOUR from the following questions:****4×4=16**

- a) Why is the temperature of the sunspots lower than their surroundings?
- b) Why does the temperature in the chromosphere of Sun increase with height?
- c) Describe the nebular model of origin of solar system.
- d) Describe CNO cycle to produce energy in a star.
- e) Discuss why a star cannot sustain most of its energy using chemical ways.
- f) What are differences between stars, brown dwarfs and giant planets?
- g) Describe the butterfly diagram of sunspot cycle.
- h) Describe how a star can be classified in terms of its spectrum.

**GROUP-C****3. Answer any TWO from the following questions:****2×8=16**

- a) Discuss the idea of expansion of Universe and how it leads to the big bang theory.
- b) Write a short notes on different layers of solar atmosphere using diagram?
- c) Describe Hubble's classification of galaxies.
- d) Describe the rotation of our galaxy and how it led to the idea of dark matter.

**(5+3)**

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