

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2017
(Second Semester)

Branch- PHYSICS

ASTROPHYSICS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 2 = 20)

- 1 What is meant by Ecliptic system?
- 2 What is stellar parallex?
- 3* What are asteroids?
- 4 Write a note on comets.
- 5- What are called bound-free transitions?
- 6 Explain how one can determine the chemical composition of the sun and other stars.
- 7 What is Jean's criterion for self-gravitation of an isothermal gas cloud?
- 8 What is meant by star formation?
- 9 What are proton - proton chain?
- 10 What is thermonuclear fusion?

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a What is cluster parallax? Explain.
OR
b What is secular parallax? Explain.
- 12 a Explain Big - bang theory. .
OR
b Explain about refracting telescope.
- 13 a. State and explain Russelt - Vogt theorem.
OR
b What are free - free transitions? Explain.
- 14 a Explain Schoenberg - Chandrasekhar limit of an isothermal core.
OR
b Explain the effect of depletion of hydrogen on the evolution of stars.
- 15 a Explain about Carbon - nitrogen cycle.
OR
b Derive the formulae for the energy generation rates.

SECTION - C (30 Marks)

Answer any THREE Questions

4 ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Discuss about the local equatorial system and the universal equatorial system.
- 17 Explain about Black hole and supernova.
- 18 Derive Eddington's mass - luminosity law.
- 19 Explain the following (i) Nuclear time scale (ii) Ages of star clusters.
- 20 Explain in detail, the comprehensive theory of nucleosynthesis.