



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 199434**

Roll No.

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**B. Tech.**

(SEM. IV) THEORY EXAMINATION, 2014-15

**SPACE SCIENCE**

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions. All questions carry equal marks.

1 Answer any four parts of the following : **5×4=20**

- (a) What do you understand by space science ?
- (b) Describe space colonization.
- (c) Discuss the various processes of stellar science.
- (d) Write down some of the applications of space science.
- (e) Discuss astronomical methods.

2 Answer any two parts of the following : **10×2=20**

- (a) Explain the nebular theory of the origin of the solar system.
- (b) Explain Kepler's laws of planetary motion. Deduce Newton's laws from Kepler's laws.

- (c) Write the short notes on :
- (i) Comets
  - (ii) Asteroid Belt
  - (iii) Dwarf Planets
  - (iv) Trojan satellites.
- 3** Answer any four parts of the following : **5×4=20**
- (a) Define Chandrasekhar limit. Give its applications.
  - (b) What is black hole ? How it is formed ?
  - (c) Discuss about binary stars.
  - (d) What is Eddington luminosity ?
  - (e) How can we differentiate star clusters ?
- 4** Attempt any two parts : **10×2=20**
- (a) What is Nebula ? How do you differentiate from the galaxy ?
  - (b) What are variable stars ? How they are designated ? Discuss the typical light curve of a variable star.
  - (c) What are quasars ? Explain their characteristics.
- 5** Attempt any two parts : **10×2=20**
- (a) Define dark energy and dark matter. How does they affect the universe ?
  - (b) Explain Hubble expansion model of universe.
  - (c) What is quintessence ? How it differs from cosmological constant ?