

**B.TECH**  
**(SEM IV) THEORY EXAMINATION 2017-18**  
**SPACE SCIENCE**

*Time: 3 Hours**Total Marks: 70***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 7 = 14**

- (a) Write two contributions of Galileo in post telescopic era.
- (b) Define distance modulus for space observation.
- (c) What do you mean by asteroids?
- (d) Write main nuclear reactions on sun.
- (e) What do you mean by luminosity of star?
- (f) Define Chandrasekhar limit.
- (g) Define Hubble's law.

**SECTION B****2. Attempt any three of the following:****7 x 3 = 21**

- (a) Describe individual Contributions in pre telescopic era by Ptolemy, Copernicus, Brahe and Kepler.
- (b) Describe the achievements of Hubble Space Telescope. What are infrared and X-ray telescopes?
- (c) State Kepler's laws of planetary motion and show how they can be deduced from Newton's law of gravitation.
- (d) What are variable stars? How they are designated? Discuss the typical light curve of a variable star.
- (e) Describe cosmic microwave radiation.

**SECTION C****3. Attempt any one part of the following:****7 x 1 = 7**

- (a) What are the contributions of NASA and ISRO in space research?
- (b) Describe contributions of Albert Einstein, Isaac Newton and Stefan Hawkins in space science.

**4. Attempt any one part of the following:****7 x 1 = 7**

- (a) What are main measurement techniques for distance and weather in Space?
- (b) Write short notes on the following:
  - (i) Determination the mass of the earth.
  - (ii) Eye related problems in space travelling.

**5. Attempt any one part of the following:****7 x 1 = 7**

- (a) What is Bode's law? Which planet do not fit in Bode's law and why?
- (b) What are theories for the origin of solar system? Describe them.

**6. Attempt any *one* part of the following:**

**7 x 1 = 7**

- (a) Describe the origin and evolution of galaxies. Explain different types of galaxies.
- (b) Write short note on any four of the following:
  - (i) Hertzsprung-Russell diagram
  - (ii) Black holes

**7. Attempt any *one* part of the following:**

**7 x 1 = 7**

- (a) Explain Hubble expansion model of universe. How does dark energy and dark matter affect the universe?
- (b) Discuss Big Bang model for expansion of the universe. How it differs with Hubble model?