

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

*Time: 3 Hours**Total Marks: 100***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt *all* questions in brief.****2 x 10 = 20**

- (a) What do you mean by space science?
- (b) Discuss various processes of stellar science.
- (c) Explain space colonization.
- (d) Explain Dwarf Planets.
- (e) What do you mean by Trojan satellites?
- (f) Define Chandrasekhar limit.
- (g) What is Black hole?
- (h) What do you mean by binary star?
- (i) Define dark energy.
- (j) What is Nebula?

**SECTION B****2. Attempt any *three* of the following:****10 x 3 = 30**

- (a) Write down the contributions of Stefan Hawkins in space research.
- (b) How does dark energy and dark matter affect the universe?
- (c) What are variable stars? How they are designated? Discuss the typical light curve of a variable star.
- (d) How do you differentiate a Nebula from the galaxy?
- (e) Discuss Big Bang model for expansion of the universe. How it differs with Hubble model?

**SECTION C****3. Attempt any *one* part of the following:****10 x 1 = 10**

- (a) What are artificial and natural satellites? How these satellites help the life on earth?
- (b) Mention latest contributions of ISRO in space science.

**4. Attempt any *one* part of the following:****10 x 1 = 10**

- (a) Draw a neat and clean sketch of our solar system and show the relative position of planet. Discuss about Mars.
- (b) State Kepler's laws of planetary motion and show how they can be deduced from Newton's law of gravitation.

**5. Attempt any *one* part of the following:****10 x 1 = 10**

- (a) Describe the birth and evolution of a star. Also mention nucleo-synthesis and formation of elements in the star.
- (b) What is Bodes law? Which planet do not fit in Bodes law and why?

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

**10 x 1 = 10**

- (a) What do you understand by luminosity of a star? How it is related with size of star?
- (b) Describe the origin and evolution of galaxies. Discuss the violent activities in galaxies.

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

**10 x 1 = 10**

- (a) Universe is expanding. Comment on it.
- (b) What do you mean by dark energy and dark matter?