Register No : _____

# THE KAVERY ENGINEERING COLLEGE

***(An Autonomous Institution)***

## UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026

***Sixth Semester***

***Computer Science and Engineering***

**OAS351 – SPACE SCIENCE**

**(Common to Electronics and Communication Engineering)**

***Regulations - 2021***

***Duration : 3 Hrs*** ***Maximum : 100 Marks***

***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)***

| *Q.No* | *Questions* | *BLT* | *CO* | *Marks* |
|---|---|---|---|---|
| 1. | Identify any two effects of vacuum in space environment. | L2 | 1 | 2 |
| 2. | Define space science and mention two of its major applications. | L2 | 1 | 2 |
| 3. | State the Hubble expansion model and its relevance to cosmic evolution. | L2 | 2 | 2 |
| 4. | What evidence supports the Big Bang theory? | L1 | 2 | 2 |
| 5. | List any two features of active galaxies and quasars. | L1 | 3 | 2 |
| 6. | Name two effects of galactic magnetic fields and cosmic rays. | L1 | 3 | 2 |
| 7. | Sketch Hertsprung-Russell diagram and label the major regions. | L2 | 4 | 2 |
| 8. | Define the Chandrasekhar Limit and its significance in stellar evolution. | L2 | 4 | 2 |
| 9. | Give two examples of artificial satellites and their purposes. | L1 | 5 | 2 |
| 10. | Recall Bode's Law and indicate how it helps in predicting planetary distances? | L2 | 5 | 2 |

***PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)***

| *Q.No* | | *Questions* | *BLT* | *CO* | *Marks* |
|---|---|---|---|---|---|
| 11. | a | Investigate the characteristics of vacuum, plasma, and radiation in the space environment. How do these factors affect spacecraft design and function? | L3 | 1 | 16 |
| | | **Or** | | | |
| | b | Examine different types of space debris and demonstrate the mitigation techniques used by space agencies to manage their impact on spacecraft and satellites? | L3 | 1 | 16 |
| 12. | a | Discuss the roles of dark matter and dark energy in the expansion of the universe? | L3 | 2 | 16 |
| | | **Or** | | | |
| | b | Interpret the implications of cosmic microwave background radiation and summarize its contributions to our understanding of the early universe? | L3 | 2 | 16 |
| 13. | a | Illustrate the interaction between cosmic rays and magnetic fields in the Milky Way. Explain the significance of this interaction in astrophysical observations? | L2 | 3 | 16 |
| | | **Or** | | | |
| | b | Classify different types of galaxies and describe their structural features using neat sketches? | L2 | 3 | 16 |
| 14. | a | Compare the structural characteristics and life cycles of different composite stars? | L3 | 4 | 16 |
| | | **Or** | | | |
| | b | Construct a chart representing the Harvard spectral classes and explain the significance of absorption lines in classifying stars within this system? | L3 | 4 | 16 |
| 15. | a | Demonstrate the application of Kepler's laws by solving a numerical example involving the revolution of a planet around the Sun? | L3 | 5 | 16 |
| | | **Or** | | | |
| | b | Compare the planets in our Solar System based on size, shape, distance from the Sun, period of rotation, and revolution? | L3 | 5 | 16 |