

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Sixth Semester**Electronics and Communication Engineering***OAS351 – Space Science****(Common to Computer Science and Engineering)***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Identify two key challenges faced by astronauts in the space environment.	L1	1	2
2.	State Newton's Law of Gravitation and explain its importance in space science.	L1	1	2
3.	What evidence supports the Big Bang theory?	L1	2	2
4.	Differentiate dark matter and dark energy.	L1	2	2
5.	How do quasars contribute to our understanding of the early universe?	L1	3	2
6.	Define cosmic rays and mention one source of cosmic rays.	L1	3	2
7.	Comment on the significance of stellar nucleosynthesis in the formation of elements.	L1	4	2
8.	Sketch the HR diagram and mention its function.	L1	4	2
9.	What is the Nebular theory of solar system formation?	L1	5	2
10.	Give two examples of artificial satellites and their purposes.	L2	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Examine the protective measures a spacecraft should implement to minimize damage from the plasma and radiation environments in space.	L4	1	16
	Or			
	b Analyze the impact of space debris on the International Space Station (ISS) and the precautionary measures implemented to reduce these hazards.	L4	1	16
12.	a Assess the uniform detection of cosmic microwave background radiation across the universe supports the Big Bang theory.	L3	2	16
	Or			
	b Using the concept of Hubble's Law, explain how astronomers determine the distance of a galaxy that is moving away from Earth.	L3	2	16
13.	a Identify the influence of the galactic magnetic field on the propagation and behavior of cosmic rays within the Milky Way.	L3	3	16
	Or			
	b Organize the major stages in the evolution of galaxies from the early universe to the present day.	L3	3	16

14.	a	Illustrate the differences between white dwarfs, neutron stars, black holes, variable stars, and binary star systems within their respective classifications.	L2	4	16
		Or			
	b	Explain the Chandrasekhar limit and its significance in determining the fate of a white dwarf star.	L2	4	16
15.	a	Solar wind and nuclear reactions act as sources of energy for celestial bodies and influence their surrounding environments. Justify.	L3	5	16
		Or			
	b	Discuss the variations in size and shape among the planets in our solar system, explaining the ways these characteristics influence their atmospheres and surface conditions.	L3	5	16