Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/ B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Sixth Semester

Electronics and Communication Engineering

OAS351 - Space Science

Regulations - 2021

Duration : 3 Hrs *Maximum : 100 Marks*

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

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	How does radiation from cosmic events affect technology on Earth?	RE	1	2
2.	What are the characteristics of the vacuum of space, and how does it differ from Earth's atmosphere?	UN	1	2
3.	What do you understand by dark energy?	UN	2	2
4.	Define Hubble's Law.	RE	2	2
5.	How do we classify galaxies, and what are the defining characteristics of each type?	UN	3	2
6.	List the role do magnetic fields play in galaxies.	RE	3	2
7.	What is the significance of stellar spectrum?	RE	4	2
8.	How does Nucleo-synthesis work ?	RE	4	2
9.	List the main stages of the nebular theory?	RE	5	2
10.	State Bode's Law.	RE	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)*

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a	i	Outline key milestones in the development of space science during the 20th century?	UN	1	5
		ii	Explain debris environment and its effect in detail.	UN	1	8
			Or			
	b		Explain Newton's Law of Universal Gravitation and its significance in space science.	UN	1	13
12.	a		Summarize the Big Bang Theory with its postulates.	UN	2	13
			Or			
	b		Explain briefly the Cosmic Microwave Background Radiation (CMBR) with necessary diagrams.	UN	2	13
13.	a	i	Examine how the rotation speeds of galaxies relate to their mass distribution.	AN	3	4
		ii	Inference on active galaxy and what mechanisms drive their activity?	AN	3	9
			Or			
	b		How do environmental factors, like the presence of galaxy clusters, affect galaxy evolution? Analyze in detail.	AN	3	13

14.	a	Determine the purpose of Hertzsprung-Russell (H-R) diagram and explain the main regions of the H-R diagram.	EV	4	13
		Or			
	b i	Explain the role of Chandrasekhar limit play in the formation of neutron stars and black holes.	EV	4	9
	ii	Explain about neutron stars and black holes.	EV	4	4
15	a	What are Kepler's Laws? Explain how did Newton build on Kepler's Laws? Discuss.	EV	5	13
		Or			
	b i	How is the mass of the Earth determined?	EV	5	4
	ii	Determine the masses of other planets relative to Earth.	EV	5	9

*PART – C (Marks 1*15 = 15)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
16	a	Discuss about white dwarfs and Neutron stars. How do the properties of white dwarfs and neutron stars differ in terms of mass, size, and structure?	AN	2	15
		Or			
	b	Explain in detail about Asteroids, Satellites and Comets	UN	5	15