U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**

Branch: Institutional Elective **Duration: 3 hrs.**

Course Code: 24PY7OEAPS **Max Marks: 100**

Course: Astrophysics and Space Science

Instructions: 1. Answer any FIVE full questions, choosing one full question from each module.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		MODULE - I	CO	PO	Marks
1	a)	Discuss in detail the Ptolemy's astronomical work which elucidates the geocentric model of the universe.	CO1	PO1	**10**
	b)	Define the terms astronomical unit, light year and parsec. Write their relation. Explain the heliocentric parallax method to measure the astronomical distances.	CO1	PO1	**10**
		OR			
2	a)	What is celestial sphere? With neat sketch describe the equatorial coordinate system.	CO1	PO1	**10**
	b)	Mention and explain in detail the types of time systems.	CO1	PO1	**10**
		MODULE - II			
3	a)	What are absolute magnitude and distance modulus? Obtain the relation between them.	CO1	PO1	**10**
	b)	Mention the methods of luminosity measurement. With neat sketch of photoelectric photometer, illustrate the photoelectric method of luminosity measurement.	CO1	PO1	**10**
		OR			
4	a)	With all the key features explain the Yerkes method of luminosity classification.	CO1	PO1	**10**
	b)	Explain the Hertzsprung-Russell (H-R) diagram and its significance in stellar astrophysics.	CO1	PO1	**10**
		MODULE - III			
5	a)	With suitable labeled drawing explain the internal structure and atmosphere of the Sun.	CO1	PO1	**10**
	b)	Briefly explain the role of telescopes in the exploration of solar system. Describe the types, key discoveries and contributions	CO1	PO1	**10**

			from telescopic observations. Also mention the challenges in solar system exploration via telescopes.			
			OR			
	6	a)	What are solar flares? Explain the causes, formation and types of solar flares. Also discuss the impact of solar flares on space and earth-based systems.	CO1	PO1	**10**
		b)	What is solar eclipse? Discuss the types, condition for occurrence of solar eclipses with suitable drawing.	CO1	PO1	**10**
			MODULE - IV			
	7	a)	With necessary diagram explain the structure of earth's atmosphere.	CO1	PO1	**10**
		b)	What is interplanetary space? Describe the key features of interplanetary space in detail.	CO1	PO1	**10**
			OR			
	8	a)	What is troposphere? Explain the lower, middle and upper troposphere in detail.	CO1	PO1	**10**
		b)	With diagram explain the earth's magnetic field and its key role in protecting the planet from space weather.	CO1	PO1	**10**
			MODULE - V			
	9	a)	What are optical telescopes? Mention their types. Explain the general properties of telescopes.	CO2	PO1	**10**
		b)	With diagrams explain the different mountings of telescopes.	CO2	PO1	**10**
			OR			
	10	a)	Mention the characteristics of the reflecting telescopes. With neat schematic of the optical systems explain the different focus of the reflecting telescopes.	CO2	PO1	**10**
		b)	Explain the features of telescopes of different wavelengths available for space exploration. Discuss the challenges of space telescope and mention the notable space telescopes.	CO2	PO1	**10**

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