

Name:			
Enrolment No:			
UPES End Semester Examination, December 2023			
Course: Planetary Sciences Program: M.Sc. Physics Course Code: PHYS 8089P		Semester: III Time : 03 hrs. Max. Marks: 100	
Instructions: Use of scientific calculator is allowed.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	A star supplies its own energy from nuclear sources. Using this concept, explain the phenomenon of stellar equilibrium.	4	CO1
Q 2	Briefly explain the dominant atmospheric escape and loss processes on Earth and Venus.	4	CO3
Q 3	How large is the Moon if its angular size is about 30 arc minutes and it is 384,000 kilometers away from us?	4	CO2
Q 4	In celestial mechanics, state the significance of orbital resonances	4	CO1
Q 5	Derive the value of escape velocity for the planet Jupiter.	4	CO3
SECTION B (4Qx10M= 40 Marks)			
Q 6	Implicitly explain the techniques for measuring planetary diameters and volumes.	10	CO2
Q 7	Discuss the atmosphere, structure, and composition of the planet Mars. OR Deduce the effect of perturbing forces acting on orbiting satellites with respect to Earth's shape and effect of atmospheric drag.	10	CO4
Q 8	Provide inherent details of the missions sent to study planets and extrasolar planets.	10	CO4
Q 9	State the significance and various characteristics of the heliosphere of our solar system.	10	CO2
SECTION-C (2Qx20M=40 Marks)			
Q 10	Briefly describe the compositions and types of a. Meteoroids b. Asteroids	6 8	CO1

	c. Comets.	6	
Q 11	<p>a. Explain the concept of planetary migration.</p> <p>b. Under the study of chemistry of protoplanetary disc, explain the concepts of equilibrium condensation and disequilibrium processes.</p> <p style="text-align: center;">OR</p> <p>Provide intrinsic details of growth of solid bodies formation of Jovian planets.</p>	<p>10+10</p> <p>20</p>	CO3