Name: **Enrolment No:**	

UPES

End Semester Examination, December 2024

Course: Mineral Science **Semester: I**

Program: B.Sc Geology (Hons) **Time : 03 hrs.**

Course Code: PEGS1021 **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Explain Miller Indices and the 4 numbers in the same	**04**	**CO1**
Q 2	i. Generalized chemical composition of feldspar is ---- ii. Amethyst is ---------in shape iii. Amphibole exhibits -------silicate structure. v. Rectangle exhibits ---------symmetry	**01*4=04**	**CO1**
Q 3	i. The distance and angle between two points known as ----- ii. A plane parallel to two axes but cutting the third axis at a length equal to one edge of a unit cell has Miller indices of ---- iii. Number of edges in cube is ----- iv. Three unequal axes at an angle 90 degree represent -------system	**04**	**CO1**
Q 4	Explain the rules of Miller Indices	**04**	**CO2**
Q 5	i. Define metamict mineral ii. Explain polytypism with suitable examples	**02*2=04**	**CO3**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Analyze the importance of silicates as the most common rock-forming minerals, and mechanical stability of tecto-silicate minerals.	**5+5=10**	**CO4**
Q 7	Compare rock-forming minerals with ore-forming minerals and cite 5 examples of each of them	**10**	**CO4**
Q 8	Each question carries 02 marks i. Summarize the role of Bertrand Lens in microscope ii. Explain dichroism with suitable examples iii. Differentiate between isotropism and extinction iv. Explain transformation twin in minerals v. Describe the relationship between optic axis and birefringence	**02*5=10**	**CO3**

Q 9	Judge the role of plate tectonics in mineralization/ mineral formation. Or Appraise the role of various geological processes in the formation of minerals	**10**	**CO2**
SECTION-C (2Qx20M=40 Marks)			
Q 10	Using neat diagram, illustrate the optical behaviour (with proper labeling and outcome) of anisotropic mineral.	**20**	**CO2**
Q 11	Elaborate on the garnet group of minerals, classify and highlight their mode of formation. Or Elaborate on the pyroxene group of minerals, classify and highlight their special property, if any.	**20**	**CO3**