Name:

Enrolment No:

UPES

End Semester Examination, December 2024

Course: Structural Geology and Tectonics

Semester: I

Program: MSc Applied Geology **Time: 03 hrs.**

Course Code: PEAG7004 **Max. Marks: 100**

Instructions:

All questions are compulsory. Internal choice is provided in Section B and Section C.

Draw suitable diagram where necessary.

SECTION A
(5Qx4M=20Marks)

S. No.	Questions	Marks	CO
Q 1	Define "mantle plume" with geological significance in the theory of plate tectonics.	**4**	**CO1**
Q 2	List the key features associated with a fault plane and define them.	**4**	**CO1**
Q 3	Explain the concept of ductile deformation with suitable deformation structures.	**4**	**CO2**
Q 4	Illustrate the transposition and preferred fabrics	**4**	**CO2**
Q 5	Define "continental drift" with appropriate examples as geological evidence.	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Classify folds based on their geometry and discuss them.	**10**	**CO2**
Q 7	Explain the faults identification parameters in the field. Discuss the significance of these criteria in fault analysis.	**10**	**CO3**
Q 8	Give the classification of joints. Explain their importance in fracture analysis. OR Classify the sedimentary basin, associated with plate margins. Explain with suitable diagram.	**10**	**CO3**
Q 9	Differentiate the geomorphological features of ductile and brittle deformation. OR Explain the concept of a shear zone and its role in rock deformation.	**10**	**CO3**
	SECTION-C **(2Qx20M=40 Marks)**		

Q 10	Explain the time relationship between mineral crystallization and deformation in metamorphic rocks. OR Describe the geological structure of the K-G Basin or Cauvery Basin and its relevance in resource exploration.	**20**	**CO4**
Q 11	Evaluate the impact of different tectonic environments (such as convergent and divergent boundaries) on the formation of geological structures, with examples from Indian sedimentary basins. OR Assess the geological features associated with plate tectonics, such as hot spots, lithospheric boundaries, and mantle plumes, and their influence on global tectonic patterns.	**20**	**CO4**