


Name:			
Enrolment No:			
UPES End Semester Examination, December 2023			
Course: Igneous and Metamorphic petrology Program: M Sc Petroleum Geosciences Course Code: PEGS 7022		Semester: I Time: 03 hrs. Max. Marks: 100	
Instructions: Attempt all questions. Internal choice given in Q9 and Q11.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q1	Define fractionation in a magmatic system.	4	CO1
Q2	Distinguish between gravitative separation and flowage differentiation of magma.	4	CO1
Q3	Name four common minerals present in felsic igneous rocks.	4	CO1
Q4	Define grade of metamorphism.	4	CO1
Q5	Differentiate between sill and dyke with help of suitable diagram.	4	CO1
SECTION B (4Qx10M= 40 Marks)			
Q6	With a suitable diagram, describe the features of contact metamorphism.	10	CO2
Q7	Explain how a petrologist can differentiate between the sub-alkaline rocks from its major element composition.	10	CO2
Q8	Elaborate different structures of igneous rocks seen in field outcrops.	10	CO3
Q9	Discuss tectonic conditions that result in regional metamorphism. OR Discuss regional stress conditions which lead to cataclastic metamorphism.	10	CO3
SECTION-C (2Qx20M=40 Marks)			
Q10	Discuss in detail the role of trace elements in deciphering the genesis and evolution of igneous rocks.	20	CO5
Q11	Elaborate with suitable figures, different types of textures present in igneous rocks. OR	20	CO4

	Describe Harker diagrams and explain how they help understand magmatic differentiation.		
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