


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2022			
Course: Metamorphic Petrology Program: B.Sc Geology [Hon] Course Code: PEGS 2029		Semester: IV Time : 03 hrs. Max. Marks: 100	
Instructions: 1. Attempt all the Questions from Section A & Section B. 2. Attempt Any two questions from Section C. 3. Draw label diagram to explain the answer where is required.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Define metamorphic and metasomatic process.	4	CO1
Q 2	Illustrate index minerals and their significance in metamorphic rocks.	4	CO2
Q 3	Define grade of metamorphism with example.	4	CO1
Q 4	Define Eclogite metamorphic facies and associate minerals.	4	CO1
Q 5	List the metamorphic rocks of following preexisting rocks: i. Limestone ii. Granite iii. Sandstone iv. Gabbro	4	CO1
SECTION B (4Qx10M= 40 Marks)			
Q 6	Illustrate metamorphic facies with label diagram.	10	CO2
Q 7	Discuss the various metamorphic zones. What are minerals used for identification of metamorphic zones?	10	CO3
Q 8	Explain the metamorphic environments and associated metamorphic process in the context of subduction plate margins.	10	CO3
Q 9	Classify the types of metamorphism with their geological significance for minerals deposition. OR Explain the Barrovian zones, draw the Stability effect of Kyanite, Sillimanite and Andalusite.	10	CO3
SECTION-C (2Qx20M=40 Marks)			
Q 10	Differentiate any four from the followings: i. Differentiate Impact and shock metamorphism ii. Prograde and retrograde metamorphism	20	CO4

	iii. Migmatites and anataxis iv. Greenschist facies and Blueschist facies v. Hornfels & Zeolite facies		
Q 11	Create the hydrothermal metamorphic model for primary ore formation. Explain geological significance of gossan bed.	15+5	CO4
Q 12	Draw the schematic profile of a deeply weathered copper sulphide ore deposit, displaying the supergene “secondary” zonation resulting from redistribution of elements. Explain with chemical reaction process for copper sulphide ore formation.	10+10	CO4