


Name:			
Enrolment No:			
<b>UNIVERSITY OF PETROLEUM AND ENERGY STUDIES</b> <b>End Semester Examination, May 2022</b>			
<b>Course: Elements of Geochemistry</b> <b>Program: B.Sc Geology (Hons)</b> <b>Course Code: PEGS 1005</b>		<b>Semester: II</b> <b>Time : 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>Instructions:</b>			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.		<b>Marks</b>	<b>CO</b>
Q 1	Elaborate the bulk earth composition	<b>04</b>	<b>CO1</b>
Q 2	Classify the dissolved constituents present in modern sea.	<b>04</b>	<b>CO1</b>
Q 3	Differentiate between Chondrite & chondrule	<b>04</b>	<b>CO2</b>
Q 4	Discuss the factors favoring ionic substitution in minerals	<b>04</b>	<b>CO1</b>
Q 5	Explain disordered type of polymorphism with suitable example	<b>04</b>	<b>CO2</b>
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Calculation of the minimum wavelength of radiation capable of splitting an oxygen molecule into oxygen atoms using photodissociation technique	<b>10</b>	<b>CO3</b>
Q 7	Demarcate the chemical behavior of water across all possible values of Eh and pH with suitable sketch	<b>10</b>	<b>CO3</b>
Q 8	Discuss the various tools used for Geothermobarometry and their respective significance	<b>10</b>	<b>CO1</b>
Q 9	“Effectiveness of water as a universal solvent is governed by its dielectric constant”-Validate the statement <b>OR</b> Using the concept of acid-base dissociation, design the dissociation of Goethite	<b>10</b>	<b>CO4</b>
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q 10	Define Gibb’s free energy. Using Phase diagram, calculate the degree of variance for water system.	<b>20</b>	<b>CO3</b>

Q 11	Creation of solar system is best explained by Nebular hypothesis. Match the characteristics of solar system with the findings of Nebular hypothesis.  <b>OR</b> Explain Sulphur cycle and its role in evolution of modern day atmosphere	<b>20</b>	<b>CO4</b>
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