
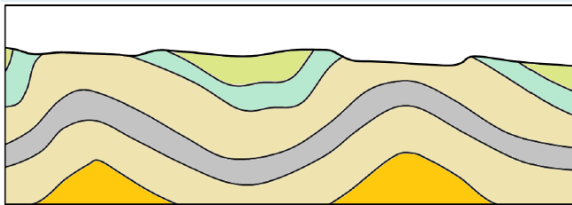
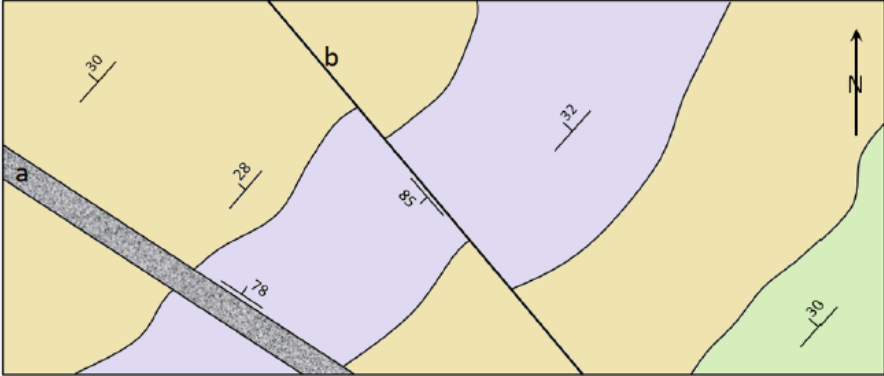
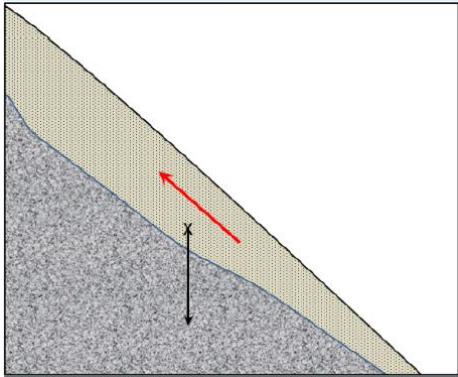


Name:			
Enrolment No:			
UPES End Semester Examination, Dec. 2024			
Course: Physical Geology Programme: M. Sc. (Applied Geology) Course Code: PEAG 7001_3 Instructions: All questions are compulsory		Semester: I Time: 3 hrs. Max. Marks: 100	
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Describe the structure of the atmosphere.	4	CO1
Q 2	Illustrate various layers of the soil under soil profile.	4	CO3
Q 3	Explain why carbonate sediments are absent from the deepest parts of the oceans	4	CO1
Q 4	Label the types of folds in this diagram, and label any of the important features of the folds. 	4	CO3
Q 5	If the flow velocity of a stream is 1 cm per second, what sizes of particles can be eroded, what sizes can be transported if they are already in suspension, and what sizes of particles cannot be moved at all?	4	CO2
SECTION B (4Qx10M=40Marks)			
Q 6	Summarize the Diastrophism or crustal warping with suitable examples. OR Summarize the stages of formation of ocean basins with suitable examples.	10	CO2
Q 7	Categorize the various types of weathering with suitable examples.	10	CO4
Q 8	This diagram is a plan view (map) of the geology of a region. The darker areas represent sedimentary beds.	10	CO3

	 <p>i) Describe in words the <i>general</i> attitude (strike and dip) of these beds. ii) Which of these beds is the oldest? iii) What is “a” and what is its attitude? iv) What is “b” and what is its attitude? v) Which of these terms applies to “b”: “left lateral” or “right lateral”?</p>		
Q 9	Discuss the oxygen cycle in detail with neat sketch.	10	CO1

SECTION-C
(2Qx20M=20Marks)

Q 10	 <p>1. In the scenario shown here, the gravitational force on the unconsolidated sediment overlying the point marked with an X is depicted by the black arrow. Draw in the two arrows that show how this force can be resolved into the shear force (along the slope) and the normal force (into the slope).</p> <p>2. The red arrow in the diagram depicts the shear strength of the sediment. Assuming that the relative lengths of the shear force arrow (which you drew in question 1), and the shear strength arrow are indicative of the likelihood of failure, predict whether this material is likely to fail or not.</p> <p>3. After several days of steady rain, the sediment becomes saturated with water and its strength is reduced by 25%. What are the likely</p>	20	CO3
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	<p>implications for the stability of this slope?</p> <p style="text-align: center;">OR</p> <p>Discuss the concept of Isostasy with suitable formulations and neat sketches.</p>		
<p>Q 11</p>	<p>(a) Figure shows the pattern of sea-floor magnetic anomalies in the area of a spreading ridge. Draw in the likely location of the ridge.</p> <div data-bbox="506 516 896 936" data-label="Figure"> </div> <p>(b) What is a mantle plume and what is its expected lifespan? (c) Describe the nature of movement at an ocean ridge transform fault (i) between the ridge segments, and (ii) outside the ridge segments (d) Name the plates on this map and show their approximate motion directions</p> <div data-bbox="539 1121 863 1654" data-label="Figure"> </div>	<p>20</p>	<p>CO4</p>