1. **Weathering**: List or briefly describe 3 factors that influence (control) rates of weathering (there are many!) (3 pts)

2. **Grain Properties**: List or describe two properties of grain(s), other than sorting/size, in a rock that reflect upon transport history (2 pts).

3. **Flow Regimes & Reynolds #:** In terms of velocity and water depth, explain the difference between laminar (critical) and turbulent flow (4 pts). Examples may help.

4. **Sedimentary Structures**: Laminae are a common feature in sediments. What processes/factors lead to the formation of laminae? List or describe at least 4! (4 pts)
5. **Sedimentary Structures:** Draw arrows showing the current flow, including eddies, over the 2 ripples below (~2-3 cm high) *(2 pts)*. Then explain what causes the difference in the angle of the foresets with the bottomsets in the two ripples *(2 pts)*.

![Diagram of Sedimentary Structures](image)

6. **Stream Flow Dynamics:** Using the diagrams below, explain how the current (direction/velocity) varies in a meandering river (both laterally and parallel to the direction of flow) and causes migration of the river banks and distribution/deposition of sediment *(4 pts)*.

![Diagram of Stream Flow Dynamics](image)

7. **A)** What do the bedforms in the figure to the right indicate in terms of current directions? *(2 pts)*.

**B)** Where would you expect to see the bedforms in panel C *(2 pts)*?
8. Compare and contrast an **alluvial fan** and a **submarine fan** (25 points). A) Draw each in plan view, and a x-section of each, along the central axis. Label primary geomorphic features. Describe or list the following, B) the primary depositional facies including lithologies, grain sizes, shape, and sorting, bedding plane structures, C) the primary transport/depositional processes, and D) spatial and vertical (succession) distribution of facies. E) What are the key characteristics that can be used to distinguish one from the other?. Drawings may help.
9. Compare and contrast a **meandering** and **braided river** system (25 points). A) Draw each in plan view and label primary geomorphic features. Describe or list the following; B) the primary depositional facies including lithologies, grain sizes, shape, and sorting, bedding plane structures, C) the primary transport/depositional processes, and D) spatial and vertical (succession) distribution of facies. E) What are the key characteristics that can be used to distinguish one from the other? Drawings may help.
10. A) Draw and label a **river dominated delta** *(12 pts)*. Describe or list the following: B) the primary depositional facies including lithologies, grain sizes, and relative sorting, bedding plane structures, C) the primary transport/depositional processes, and D) vertical succession of facies in a single cycle of progradation.

11. How do carbonate sediments differ between the shelf and deep sea? List and describe the processes that control the accumulation and vertical distribution of carbonate sediment in the deep sea. What is the calcite compensation depth? Explain how this depth might change? *(12 pts)*