

GEOMORPHOLOGY EXAM 4 EXAMPLE QUESTIONS

1. Describe the effects of waves on a). steep coastlines, and b). gently-sloping coastlines.
2. Explain the process of beach drift (alongshore transport of sand by waves) and describe three resulting coastal landforms. How does beach drift aid in coastal marsh formation?
3. Describe the major contrasts between landscapes of alpine glaciation and landscapes of continental glaciation (include typical glacial landforms in your answer).
4. With reference to the lab on Trinity River estuary marsh sedimentation, a. explain the relationship between total sedimentation-compaction (net elevation change) and elevation (include a sketch of the graph) b. why does total sedimentation-compaction fall (practically) to zero as elevation increases? c. explain the relationship between organic sedimentation rate and compaction rate (include a sketch of the graph).
5. With reference to studies conducted at Mad Island Marsh Preserve: a. What is the cause and geomorphological evidence of shoreline erosion in this area? b. How might shoreline erosion increase salt-water intrusion into Mad Island Lake? What measures have been taken to combat erosion and how successful have they been?
6. With reference to the paper, "Assessing the impact of weir construction on recent sedimentation using Cesium-137": a. Explain, with the aid of diagrams, the cesium-137 dating technique. b. The study found evidence of declining sedimentation both upstream and downstream of the weir - explain the likely cause of this reduction in sediment supply.
7. With reference to the paper on shoreline erosion at Mad Island Marsh Preserve: a. What is the Gulf Intracoastal Water Way? b. What is causing erosion of the preserve shoreline and what is the geomorphological evidence of the erosion? c. What technique was used to determine where and how much erosion is occurring?
8. With reference to the paper on shoreline erosion at Mad Island Marsh Preserve: explain why shoreline erosion is a threat to habitats in Mad Island Lake.
9. Describe two examples of landforms created from direct deposition from a continental ice sheet and two examples of landforms created from meltwater deposition - what are their distinguishing features?
10. With reference to the Hurricane Ike paper: a. what causes storm surge? How does storm surge vary to either side of a landfalling hurricane?
11. Give two examples of how geomorphic changes caused by hurricanes can be assessed.
12. What is a positive effect of storm surge sedimentation in coastal marshes?
13. With reference to the paper on the magnitude of Hurricane Ike storm surge sedimentation, describe and explain a) the area with the greatest impacts, b) alongshore trends in the inland penetration and volume of deposits, c) the potential importance of storm surge deposits for coastal marshes.

Six of these questions will be on the final – you will select four to answer. All questions are worth the same.