



GEOADS03T (Geotectonics & Geomorphology)

Category A: 10 Marks

1. Discuss the tectonic and structural evolution of the Earth with reference to the Pleistocene events.
2. Explain the principles of isostasy. Compare the Airy and Pratt models with suitable diagrams.
3. Describe the plate tectonic theory as a unifying concept of global tectonics. Illustrate with examples from plate margins and hotspots.
4. Explain the formation and classification of folds. Add neat sketches.
5. Describe the different types of faults and discuss their geomorphic expression.
6. Discuss the role of weathering and mass wasting in landform development.
7. Explain the processes and landforms produced by river systems in uniclinal and folded structures.
8. Describe the coastal processes and the landforms they produce.
9. Explain the erosional and depositional landforms associated with glacial and glacio-fluvial processes.
10. Compare the models of landscape evolution proposed by Davis, Penck, and Hack.

Category B: 5 Marks

11. What is meant by the geological time scale? Write briefly on its importance in tectonic studies.
12. Write a short note on the Pleistocene epoch.



13. Explain the concept of isostasy in brief.
14. Write the basic assumptions of the Airy model of isostasy.
15. Write the basic assumptions of the Pratt model of isostasy.
16. Mention the major evidence supporting the theory of plate tectonics.
17. Differentiate between divergent and convergent plate margins.
18. Define hotspot. Give two examples.
19. Distinguish between folds and faults.
20. Write a short note on a normal fault.
21. Write a short note on reverse fault.
22. Briefly explain strike-slip fault.
23. What is mass wasting? Write its geomorphic significance.
24. Briefly explain the concept of weathering.
25. Describe the surface expression of faults.
26. Define meandering and braiding in rivers.
27. Write a short note on deltas.
28. Explain the role of waves in coastal erosion.
29. Write a note on cirques and moraines.
30. Write a short note on dunes.

Category C: 2 Marks

31. Define tectonics.
32. What is the geological time scale?
33. What is isostasy?



34. Name the scientists who proposed the models of isostasy.

35. What is plate tectonics?

36. Define subduction zone.

37. What are transform faults?

38. Define fold.

39. Define fault.

40. Mention two landforms formed by folding.

41. Mention two landforms formed by faulting.

42. Define weathering.

43. What is mass wasting?

44. Name two agents of erosion.

45. Define drainage basin.

46. What is a sea cliff?

47. Define fjord.

48. What is a drumlin?

49. Define loess.

50. Who proposed the cyclic concept of landscape evolution?



GEOADS03P (Geotectonics & Geomorphology)- Lab

10 Marks each

1. Interpret the given geological map with folds and mark the axial trace.
2. Interpret the given geological map with unconformity. Explain its geomorphic significance.
3. Interpret the given geological map with an igneous intrusion.
4. Construct a **serial relief profile** from the given toposheet and interpret.
5. Construct a **superimposed relief profile** from the given toposheet and interpret.
6. Construct a **projected relief profile** from the given toposheet and interpret.
7. Construct a **composite relief profile** from the given toposheet and interpret.
8. From the given Survey of India toposheet, extract geomorphic information of a plateau region.
9. Delineate a **drainage basin** from the given toposheet.
10. Perform **stream ordering (Strahler's method)** on the delineated drainage basin.
11. Calculate the **Relative Relief (Smith's method)** for the given basin.
12. Calculate the **Average Slope (Wentworth's method)** from the given data.
13. Calculate the **Drainage Density (Horton's method)** from the given map.
14. Construct a **hypsomeric curve** for the given drainage basin.



15. Derive the **hypsometric integral** and interpret its meaning.
16. Calculate the **Channel Sinuosity Index** for a 10 km river reach.
17. Calculate the **Braiding Index** of a river from the given toposheet .
18. Compare and interpret **serial, superimposed, projected, and composite relief profiles**.
19. Draw and explain a **longitudinal profile of a river** from the given data.
20. Discuss the geomorphic significance of slope analysis in plateau regions with diagrams.

5 Marks each

21. Write the margin information from a Survey of India toposheet.
22. Show the steps of drainage basin delineation on the given toposheet.
23. Calculate Relative Relief (Smith's method) for a small dataset.
24. Calculate Average Slope (Wentworth's method) for given values.
25. Calculate Drainage Density (Horton's method) for a given reach.
26. Construct a simple hypsometric curve from sample data.
27. Compute channel sinuosity index from given river length and valley length.
28. Compute the braiding index for a short river reach.
29. Draw a neat sketch of an anticline and a syncline.
30. Draw a simple longitudinal profile from the given dataset.



Viva Voce Questions

31. Define a mineral with one example.
32. Define rock with one example.
33. Differentiate between igneous and sedimentary rocks.
34. Which mineral is used in making pencils?
35. What is the hardness of Talc on the Mohs scale?
36. What is the parent rock of marble?
37. Name two igneous rocks.
38. Name one silicate and one carbonate mineral.
39. What is stream order?
40. Define drainage basin.
41. What is meant by drainage density?
42. Define channel sinuosity.
43. What does a high braiding index indicate?
44. What is an unconformity?
45. What is the difference between a projected and a composite profile?
46. What is the significance of a hypsometric curve?
47. What is relative relief?
48. What is the main use of topographical maps in geomorphology?
49. What is the geomorphic significance of slope analysis?
50. What information can be extracted from a Survey of India topographical sheet?