8. Describe the major geomorphic features observed on Mars and the Moon. How do they compare with terrestrial landforms? What insights do they offer into planetary processes?

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5531 **J**

Unique Paper Code : 2192012401

Name of the Paper : Geomorphology

Name of the Course : **B.Sc. (Hons) Geology (NEP)**

Semester : IV

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer any **five** questions.
3. **All** Questions carry equal marks unless mentioned.

1. Discuss the concept of river profile equilibrium. How do uplift, base level changes, and climate influence the longitudinal profile of a river? Support your answer with examples from Indian river systems.

2. (a) Explain the formation and evolution of coastal landforms such as spits, tombolos, and barrier islands.

   (b) Describe the impact of sea level changes and human activities on coastal geomorphology.

3. Examine the role of vegetation, sediment supply, and wind regime in dune morphology and migration.

4. (a) How does the glacier transport sediments?

   (b) What are the major differences between the alpine glacier and sheet glacier?

   (c) What is glacial mass balance, and how does the equilibrium line altitude (ELA) vary in response to climatic change?

5. (a) Differentiate between physical, chemical, and biological weathering with examples.

   (b) Explain how weathering processes contribute to soil formation and landscape evolution.

6. What are the major dating techniques used in geomorphology? Discuss any one dating technique in detail, explaining its principles, applications, and limitations.

7. (a) Describe the tectonic evolution of the Himalaya.

   (b) Explain the concept of dynamic equilibrium in geomorphology.

   (c) How does active tectonics modify drainage patterns in mountainous regions like the Himalayas?