

West Bengal State University
M.A/ M.Sc First Semester Examination, 2023 held in 2024
Department of Geography

GEOPCOR01T: GEOMORPHOLOGY AND GEOTECTONICS

Full marks: 40

Time: 2 hours

Answer four questions, selecting one from each unit.

Unit 1: Geotectonics

1. Discuss why the knowledge of paleomagnetism and continental drift are important in understanding structural geomorphology. Distinguish between absolute plate motion and relative plate motion. $6+4=10$

2. With reference to the evolution of tectonic landforms, discuss the types and formations of geosynclines. How are the Himalayan structural faults and fore deep basins identified? $6+4=10$

Unit 2: Foundation and Branches of Geomorphology

3. What is the relation between feedbacks and maintenance of equilibrium in geomorphic systems? State the basic concept of Catastrophism. $7+3=10$

4. Briefly describe the different morphological provinces of Mars with a geomorphic map of the Martian surface. Describe the geomorphic character of the Martian surface with reference to the formation of impact craters and volcanic features. $3+7=10$

Unit 3: Fluvial Processes and Form

5. Discuss the significance of drainage basin as a geomorphic unit. What are the different types of flow resistance? $7+3=10$

6. Discuss the hydraulics of stream flow with a suitable diagram. Write a brief note on hydraulic drop and hydraulic jump. How does hydraulically rough surface differ from hydraulically smooth surface? $5+3+2=10$

Unit 4: Geomorphic Processes and Resultant Landforms

7. Analyse in detail the formation of pingo with respect to the associated periglacial processes. Support your answer with suitable diagrams. What is talik? $(5+3)+2=10$

8. Discuss critically the slope evolution model of King with proper illustration. Elucidate King's distinctiveness of slope evolution model in comparison to Wood. $6+4=10$

West Bengal State University
M.A/ M.Sc First Semester Examination, 2022 held in 2023
Department of Geography

GEOPCOR01T: GEOMORPHOLOGY AND GEOTECTONICS

Full marks: 40

Time: 2 hours

Answer four questions, selecting one from each unit.

Unit1: Geotectonics

- AI 1. How is the concept of plate tectonics related to the evolution of alpine orogenesis in the Indian Subcontinent? Highlight how the geomorphic markers explain neo-tectonics. 6+4=10

- AI 2. Illustrate the structural landforms produced by faulting. Examine the principle and applicability of C_{14} dating. 6+4=10

Unit 2: Foundation and Branches of Geomorphology

- PB 3. How does Büdel's classification of morphogenetic regions differ from that of Peltier's?
SC (Explain the concept of Entropy.) 6+4=10

- SC 4. What are the different types of probes which have been used in Mars Missions? Give one example of each type. Explain the formation of erosional and pitted landforms resulting from Aeolian processes observed over the Martian surface. 2+8=10

Unit 3: Fluvial Processes and Form

- PB 5. What are the characteristics of various types of load a river carries? How are pools and riffles formed? 6+4=10

- SC 6. Explain the factors regulating entrainment and deposition of fluvial sediment. How does turbulent flow differ from laminar flow? 7+3=10

Unit 4: Geomorphic Processes and Resultant Landforms

- PB 7. What are the preconditions for the development of karst topography? Classify karst landforms and describe their characteristics. 3+7=10

- SC 8. Discuss with diagram how the morphological character changes from a transgressive to a regressive coastline. What is a hypopycnal condition? 8+2=10

West Bengal State University
M.A/ M.Sc First Semester Examination, 2021 held in 2022
Department of Geography

GEOPCOR01T: GEOMORPHOLOGY AND GEOTECTONICS

Full marks: 40

Time: 2 hours

Answer four questions, selecting one from each unit.

Unit1: Geotectonics

1. Elucidate the orogenic phases of the formation of Himalayas. What are the neotectonic markers commonly observed in India? 7+3=10
2. What are the tectonic implications of triple plate junctions? Discuss how tectonic deformations are reflected on the present day geomorphology a region. 4+6=10

Unit 2: Foundation and Branches of Geomorphology

3. With suitable examples explain the energy and mass conservation in complex geomorphic systems. What is a cascading system? 7+3=10
4. How does man control process-form relationships in fluvial systems? What are inherited landforms? 8+2=10

Unit 3: Fluvial Processes and Form

5. Explain the significance of Shield's parameter. Discuss the various types of resistances that occur in an open channel flow. 3+7=10
6. Explain with diagrams how stream velocity varies with distance from the stream bed and across channels. State the significance of the linear properties of drainage basin. 7+3=10

Unit 4: Geomorphic Processes and Resultant Landforms

7. Elucidate the dual role of slope in geomorphic processes. Discuss how A. Wood explains his idea of slope evolution. 4+6=10
8. Explain the importance of sediment as a coastal morphodynamic variable. What are the morphological characteristics of a tide dominated coast? 6+4=10

West Bengal State University
M.A/ M.Sc First Semester Supplementary Examination, 2020
Department of Geography

GEOPCOR01T: GEOMORPHOLOGY AND GEOTECTONICS

Time: 2 hours

Full marks: 40

Answer four questions, selecting one from each unit.

Unit 1: Geotectonics

1. What do you mean by Paleomagnetism? Explain how the discovery of Paleomagnetic evidences paved the path of development of plate tectonics. Define Tectonic Geomorphology. 3+5+2=10
2. What do you mean by Geomorphic Markers? Explain briefly the various geomorphic markers that you will look for in order to detect neotectonic activities in a region. 3+7=10

Unit 2: Foundation and Branches of Geomorphology

3. Briefly describe the different morphological provinces of Mars, supporting your answer with a geomorphic map of the Martian surface. Mention the significance of Olympus Mons. 7+3=10
4. Define morphogenetic region. Classify and discuss morphogenetic regions as suggested by J. Büdel in his later classification. 2+8 = 10

Unit 3: Fluvial Processes and Form

5. What is meant by the phrase 'threshold of erosion'? Elaborate on the processes of lift and drag forces in causing bed erosion. 2+8=10
6. How do you consider drainage basin as a geomorphic unit in terms of its geometric properties? Find out their significance in understanding the features of a drainage basin. 7+3=10

Unit 4: Geomorphic Processes and Resultant Landforms

7. Discuss the evolution of slope following L. C. King. What do you understand as parallel retreat of slope? 6+4 = 10
8. Explain with diagram the characteristics of shorelines with dissipative and reflective energy domains. Distinguish the characteristics of plunging breaker from that of surging breaker. 7+3=10

West Bengal State University
M.A/ M.Sc First Semester Examination, 2019
Department of Geography
GEOPCOR01T: GEOMORPHOLOGY AND GEOTECTONICS

Full marks: 40

Time: 2 hours

Answer four questions, selecting one from each unit.

Unit1: Geotectonics

1. Differentiate between Cordilleran-type and Alpine-type orogenies with examples. Write a short note on the stability of a R-R-R triple junction. 4+6=10
2. Provide a detailed account of the tectonic history of the Himalayas. What is an Euler pole? 8+2=10

Unit 2: Foundation and Branches of Geomorphology

3. What is the relation between feedbacks and maintenance of equilibrium in geomorphic systems? Discuss with specific examples. State the basic concept of Catastrophism. 7+3=10
4. State the properties of planets which directly or indirectly influence the operation of geomorphic processes on them. Describe the geomorphic character of the Martian surface with reference to the formation of impact craters and volcanic features. 3+7=10

Unit 3: Fluvial Processes and Form

5. What do you mean by 'settling velocity' of particles? Classify loads of a river on the basis of mechanism of transport. What do you understand from Hjulstrom curve? 2+4+4=10
6. Explain with diagrams the variability of stream velocity with distance from the stream bed and across channels. What is turbulent flow? 7+3=10

Unit 4: Geomorphic Processes and Resultant Landforms

7. Discuss the morphodynamic changes of a coast during transition from a transgressive to a regressive phase. What is a hypopycnal condition? 8+2=10
8. What are the elements of a hill slope? Discuss the parallel retreat concept in regard to the evolution of slope. What are the dual roles of a land-slope? 4+4+2=10

West Bengal State University
M.A/ M.Sc First Semester Supplementary Examination, 2019
Department of Geography
GEO 101: GEOMORPHOLOGY

Full marks: 40

Time: 2 hours

Answer four questions, selecting one from each unit.

Unit 1: Basic Concepts in Geomorphology

1. Discuss the principle, technique and applicability of any one type of absolute dating method. Explain the concept of geomorphic threshold with suitable examples. 6+4=10
2. Explain the significance of morphogenetic processes in evolution of landforms. Discuss the formation of major of landforms related with tectonic processes with examples. 4+6=10

Unit 2: Fluvial Processes and Form

3. Critically evaluate Horton's model of channel initiation. Distinguish between laminar flow and turbulent flow. 7+3=10
4. What do you understand by catchment processes? Explain the role of the different catchment processes in transforming the precipitation into outflow hydrographs. 2+8=10

Unit 3: Geomorphic Processes and Resultant Landforms

5. Describe the geomorphic processes working in a periglacial region. Describe the formation of ice wedges. 6+4=10
6. Discuss critically the slope evolution model of King with diagrams. Briefly mention the salient features of Wood's theory of slope development. 6+4=10

Unit 4: Applied Geomorphology

7. Elucidate the relevance of geomorphology in assessment of engineering projects. How do Digital Elevation Models help in geomorphological studies? 7+3=10
8. Define competency and capacity. Explain the structural and non-structural methods of preventing river degeneration. 2+8=10



Sarojini Naidu College for Women

Post Graduate Department of Geography

Affiliated to

West Bengal State University

M. Sc. First Semester Internal Examination-2025



Subject – Geography Paper – GEOPCORT 01 T : Geomorphology and Geotectonics

Full Marks – 40 Time – 2 Hrs.

(Answer any four from the following questions taking one from each unit)

Unit – 1—Geotectonics:

1. State the significance of scale in geomorphology. Write on the hierarchy of spatial scale with reference to landforms? (4 + 6)
2. What is meant by neotectonics? How do geomorphic markers help in identifying neotectonic features? (3 + 7)

Unit – 2—Foundations and Branches of Geomorphology:

3. Discuss the concept of morphogenetic regions by integrating climate, lithology and tectonic controls. How can these regions be used as a framework for predicting future landscape changes? (6 + 4)
4. Examine the role of human-induced geomorphic changes during the Anthropocene. To what extent can applied geomorphology mitigate the adverse effects of such modifications? (6 + 4)

Unit – 3- Fluvial processes and Form:

5. Define Sediment Entrainment. Mention the driving forces affecting entrainment of sediments. Write on the factors associated with bank erosion processes? (2 + 4 + 4)
6. Elaborate on Dissolved load, Suspended load and Bed load. How are Settleable solids related to settling velocity of particles? (6 + 4)

Unit – 4-Geomorphic Processes and Resultant Land form:

7. Describe the morphological influence of longshore current on the coastal environment. Elucidate the morphological differences between tide-dominated and wave-dominated coasts? (6 + 4)
8. Explain the suitable weathering processes and their controlling factors in a limestone region. Discuss the major landforms as products of such processes? (6 + 4)