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

GEOPCOR02T: SOIL AND PLANT GEOGRAPHY

Time: 2 hours

Full marks: 40

Answer four questions, selecting one from each unit.

Unit1: Soil Properties and Processes

1. What role does cation exchange capacity play in maintaining soil nutrient levels? Describe how Cation Exchange is performed in soil. 4+6=10
2. In what ways does soil organic carbon differ from soil organic matter? Describe the biological and chemical importance of soil organic matter. 2+8=10

Unit 2: Soil in relation to fertility and environment

3. What is potential acidity? Describe different causes of soil acidification. How can you manage acid soil? 1+6+3=10
4. Discuss different anthropogenic causes of heavy metal pollution. What are the effects of heavy metal pollution on plant growth? Describe different phyto-remediation procedures to remove heavy metals from soil. 4+3+3=10

Unit 3: Plant Geography

5. Explain morphological adaptations of xerophytes in response to water deficit conditions. Discuss the role of water in plant reproduction. 4+6=10
6. Define the controlling factors that affect the rate of transpiration of plants. How does temperature affect the phenology in plants? What is cardinal temperature to control vital plant activity? 4+4+2=10

Unit 4: Plant and Forest Ecology

7. Define 'relic areas'. Discuss the nature of plant response to habitat factors with the help of selected examples. 2+8=10
8. Explain the role of agro-forestry and public participation as a forest conservation measure. What are the negative consequences of logging on environment? 6+4=10

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

GEOPCOR02T: SOIL AND PLANT GEOGRAPHY

Full marks: 40 Time: 2 hours

Answer four questions, selecting one from each unit.

Unit1: Soil Properties and Processes

1. What is the significance of soil texture? How do you calculate bulk density and particle density of soil? 4+6=10

2. What is meant by the energy state of soil water? Explain the gravitational potential and osmotic potential of soil water. 3+7=10

Unit 2: Soil in relation to fertility and environment

3. Assess the importance of macro-nutrients in plant growth. State the 'Leibig's law of the Minimum'. 7+3=10

4. Distinguish between saline and sodic soil? Discuss the different causes of soil salinization. How do you manage saline soil for cultivation? 3+4+3=10

Unit 3: Plant Geography

5. Explain properties of water in plant functioning. Classify hydrophytes and state their adaptation with regard to water relationship. 3+7=10

6. Distinguish short-day plants from long-day plants with special emphasis on their responses to day lengths. Analyse the process of germination by plants. 7+3=10

Unit 4: Plant and Forest Ecology

7. Define phytogeographical regions. Discuss the forest types of continuous and discontinuous ranges. 2+8=10

8. Explain the concept and different stages of plant succession with suitable examples. Explain the hierarchical system of classification of plants. 6+4=10

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

GEOPCOR02T: SOIL AND PLANT GEOGRAPHY

Full marks: 40 Time: 2 hours

Answer four questions, selecting one from each unit.

Unit1: Soil Properties and Processes

1. How does the pH of soil affect plant growth? Describe the deficiency symptoms of plant micronutrients. 4+6=10

2. Distinguish between Cation Exchange Capacity (CEC) and Anion Exchange Capacity (AEC) of soils? Describe factors affecting Cation Exchange Capacity. 3+7=10

Unit 2: Soil in relation to fertility and environment

3. Why organic manure is more sustainable for soil health than chemical fertilizer? How do you manage acidic soil? 5+5=10

4. What are the anthropogenic sources of heavy metal pollutants? Describe the bio-remediation techniques of heavy metal pollutant soil. 4+6=10

Unit 3: Plant Geography

5. Discuss the role of soil texture, structure and organic matter on plant growth. How does soil temperature affect availability of plant nutrient? 8+2=10

6. Explain different phases and effects of thermo-periodism on plants. Mention how plants respond to low temperature. 7+3=10

Unit 4: Plant and Forest Ecology

7. What are the causes of retrogression of plant's lifeform? Explain with suitable examples the reciprocal reactions between the plant community and the habitat. 3+7=10

8. Discuss the utilization of plant resources with particular reference to non-timber forest products. Classify vicarious species. 7+3=10

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

GEOPCOR02T: SOIL AND PLANT GEOGRAPHY

Time: 2 hours

Full marks: 40

Answer four questions, selecting one from each unit.

Unit1: Soil Properties and Processes

1. How surface tension, viscosity and osmotic pressure affect the movements of soil water? State how soil moisture content influence infiltration rate. 6+4=10

2. Explain the role of microorganisms in soils. Bring out the role of soil organic matter in microbial transformations. 6+4=10

Unit 2: Soil in relation to fertility and environment

3. What is saline soil? How do we manage saline soil? What are the causes of soil acidification? 2+5+3=10

4. What is irrigation? Describe in brief the different types of surface irrigation processes with reference to the Tropical region. 2+8=10

Unit 3: Plant Geography

5. Explain different stages of photosynthesis. Discuss the effect of light on the behaviour of both terrestrial and aquatic plants. 4+6=10

6. Evaluate the adaptive mechanism of hydrophytes with the aquatic environment. Discuss the role of water in plant reproduction. 6+4=10

Unit 4: Plant and Forest Ecology

7. Define endemics. Explain different types of endemics and discuss the principles for this classification. 2+5+3=10

8. Define plant ecology. Discuss the nature of plant response to habitat factors with the help of selected examples. 2+8= 10

West Bengal State University
M.A/ M.Sc First Semester Examination, 2019
Department of Geography

GEOPCOR02T: SOIL AND PLANT GEOGRAPHY

Full marks: 40 Time: 2 hours

Answer four questions, selecting one from each unit.

Unit1: Soil Properties and Processes

1. What is soil colloid? Discuss the roles of soil pH in determining the cation and anion exchange capacities of soil. 2+8=10

2. What is ammonification in the nitrogen cycle? What are the different path ways of nitrogen fixation and dentrification? Explain with equations of the biochemical reactions involved. 3+7=10

Unit 2: Soil in relation to fertility and environment

3. What causes acidification of soils? Describe the methods of ameliorating saline soils. What are the different techniques of phyto-remediation for heavy metal pollution? 3+4+3=10

4. What are the essential and beneficial nutrients? Discuss the roles and deficiency symptoms of one macro-nutrient and one micro-nutrient on plants. 2+8=10

Unit 3: Plant Geography

5. Explain thermo-periodicity. What are its positive and negative effects on plant growth? 6+7=10

6. Examine the significance of texture and structure in the growth of plants. Why is soil aeration important for plants? 6+4=10

Unit 4: Plant and Forest Ecology

7. Evaluate plants as resource. Discuss the utilisation of plant resources with particular reference to non-timber forest products. 4+6=10

8. Define and classify disjunct ranges of forest types. Discuss specific types of these ranges with diagrams. 2+2+6=10

West Bengal State University

M.A/ M.Sc Second Semester Examination, 2019
Department of Geography

GEO 202: BIOGEOGRAPHY

Full marks: 50 Time: 2 hours

Answer four questions, selecting one from each unit

Unit 1: Soil Geography

1. What are the main reasons for soil salinization? Write the methods of reclamation of acidic soils. 4+6=10

2. What are the symptoms of micronutrient deficiency in plant? Elaborate on the prevention of soil degradation. 4+6=10

Unit 2: Plant Geography

3. Explain physiological acclimatization of plants. Discuss the adoptive mechanism of plants with examples from different environmental conditions. 4+6=10

4. Define phytogeographical region. Discuss the forest types of continuous and discontinuous ranges. 2+8=10

Unit 3: Zoo Geography

5. Mention the two processes by which genetic drift takes place. Explain the key concept of 'natural selection' and 'adaptive radiation' with suitable example. 4+6=10

6. What are the five major events of 'mass extinction' over geological time? Comment on the possible reasons behind the 'great dying' during the third event of mass extinction. 3+7=10

Unit 4: Ecology and Ecosystem

7. Classify marine ecosystem according to the depth of water. How are the marine ecosystems adversely affected by human activities? 6+4=10

8. Discuss the concept of ecosystem models with examples. Explain the main features of International Biological Programme. 416=10

Internal assessment – 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 02 T : Soil and Plant Geography

Full Marks – 40 Time – 2 Hrs.

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

Unit – 1—Soil Properties and Process:

1. State the Catena concept in soil science. Explain the role of major physical properties in growth ? (3 + 7)
2. What is solute transport in soil? Explain the main types of soils water movement? (2 + 8)

Unit – 2—Soil in relation to fertility and environment:

3. How does Liebig's Law of the Minimum relate to soil fertility? What is the role of irrigation in soil fertility management? (4 + 6)
4. Describe the impact of surface mining on soil quality. Account for the best practices for soil rehabilitation? (5 + 5)

Unit – 3—Plant Geography:

5. Explain the role of soil in plant root growth. How does soil aeration and temperature affect growth of plants? (4 + 6)
6. Define photoperiodism. Discuss the effects of thermoperiodicity on plant growth and development with suitable examples. (2 + 8)

Unit – 4—Plant and Forest Ecology:

7. Define phytogeoraphical regions of India. How does altitudinal variation affect plant distribution in the Himalayas? Explain the socio-economic consequences of deforestation on local communities? (2+4+4)
8. Distinguish between Timber and Non-timber forest produces. State the utilization of plant resources with particular reference to non-timber forest products? (3 + 7)