

P. P. SAVANI UNIVERSITY

Third Semester of B.Sc. Examination

December-2021

SSES2210- Land and Soil Conservation

08.12.2021, Wednesday Time: 09:00 a.m. to 11:30 a.m. Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section-I (Total Marks - 30)

Q.1 Short Questions

1.1 Objectives

[10]

[05]

1.1a Weathering refers to the physical disintegration and decomposition of the rocks and minerals contained in them.

- A Physical
- B Chemical
- C Biological
- D Physicochemical

1.1b A healthy soil contributes to mitigate climate change by maintaining or increasing content of

- A Carbon
- B Hydrogen
- C Oxygen
- D Nitrogen

1.1c Which is an inherent property of soil that cannot be modified within short period of time?

- A Texture
- B Structure
- C Resistance
- D Tillage

1.1d Which soil property is important for tillage?

- A Consistence
- B Structure
- C Resistance
- D Tillage

1.1e Fungal hyphae bind soil particles together and slime from bacteria help hold _____ particles together.

- A Sand
- B Silt
- C Clay
- D None of the above

1.1f Soil organic matter is one of the major pools of _____ in the biosphere.

- A Carbon
- B Hydrogen
- C Nitrogen
- D Oxygen

1.1g Soil also naturally absorbs carbon from the atmosphere in a process known as

- A Sequestration
- B Nutrient cycle
- C Aeration
- D Sedimentary cycle

1.1h Which form of water is loosely held in soil and move downwards freely under the influence of gravity?

- A Gravitational water
- B Capillary water
- C Hygroscopic water
- D Micropores water

1.1i Clays and clayey soils have a greater number of

- A Micropores
- B Capillary pores
- C Both a and b
- D None of the above

1.1j Which nutrient helps foliage grow strong and affects the plant's leaf development?

- A Sulphur
- B Phosphorous
- C Nitrogen
- D Calcium

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) [05]

1.2a Little organic material and chemical composition are largely that of the underlying rock also referred to as _____.

1.2b A _____ can be defined as layer of soil approximately parallel to the soil surface having distinct characteristics.

1.2c A soil profile is a historic record of all the soil forming processes and factors governing the soil formation. (True/False)

1.2d Soil is not populated by an amazing variety of living creatures. (True/False)

1.2e _____ help improve drainage and soil structure, making soil more fertile and productive.

Q.2 Short Notes (Attempt any two) [06]

- A Describe importance of soil.
- B Explain different types of soil structure.
- C What do you understand by soil organic matter? Discuss its sources and importance.

Q.3 Explain in detail (Attempt any two) [14]

- A What is the need for soil conservation?
- B What is soil horizon? Illustrate different horizons of soil.
- C What is the impact of tillage on soil properties?

Section-II (Total Marks - 30)

Q.1 Short Questions

[10]

1.1 Objectives

[05]

1.1a _____ are chemical elements that are essential for the growth and fertility.

- A Fertilizers
- B Elements
- C Nutrients
- D Pesticides

1.1b The tillage prepares good seed bed which is necessary for early seed

- A Germination
- B Establishment
- C Generation
- D Dormancy

1.1c In which erosion finger like rills appear on the cultivated land after it has undergone sheet erosion?

- A Rill erosion
- B Ravine erosion
- C Water erosion
- D Gully erosion

1.1d High percolation rate is the characteristic of which soil?

- A Clay soil
- B Heavy soil
- C Sandy soil
- D Loamy soil

1.1e Biological degradation is usually synonymous with decline in _____.

- A Soil fertility
- B Soil productivity
- C Organic matter
- D Nutrients

1.1f It is defined as deterioration in the quality of land.

- A Land degradation
- B Soil erosion
- C Degradation
- D Land erosion

1.1g Larger raindrops and gusts of wind hit the soil surface even at

- A Lower velocities
- B Medium velocities
- C Higher velocities
- D None of the above

1.1h Which is caused by the wave action of the sea and the inward movement of the sea into the land?

- A Soil erosion
- B Coastal erosion
- C Water erosion

D Wave erosion

1.1i Soil moisture is commonly expressed as the amount of water (in mm of water depth) present in a depth of _____ of soil.

- A Five metre
- B One metre
- C Two metre
- D Ten metre

1.1j Certain soil organisms have the ability to influence the _____ of soils.

- A Physical structure
- B Chemical structure
- C Biological structure
- D Biochemical structure

1.2 **Answer the Following: (MCQ/Short Question/Fill in the Blanks)** [05]

1.2a Land tenure systems determine who can use what _____ for how long and under what conditions.

1.2b Changes in land use and land cover result from a myriad of factors acting on the land surface. (True/False)

1.2c Soils provide anchoring support for human structures and harm archeological treasures. (True/False)

1.2d Land use refers to the purpose the land serves. (True/False)

1.2e Soil erosion is classified on the basis of the _____ responsible for erosion.

Q.2 **Short Notes (Attempt any two)** [06]

- A Describe geological and accelerated erosion.
- B Enlist and explain different types of water erosion.
- C Define water holding capacity. Explain different forms of soil water.

Q.3 **Explain in detail (Attempt any two)** [14]

- A Explain functions of soil biodiversity.
- B Define soil moisture. How moisture is lost from the soil?
- C What are the drivers of land use and land cover change?