

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** [10]
- 1.1 Objectives** [05]
- 1.1a Available water to plants in soil held between**
- A Saturation to wilting point
 - B Field capacity to hygroscopic coefficient
 - C Only field capacity
 - D Field capacity to wilting point
- 1.1b Removal of Fe and Al salts from A horizon is known as**
- A Humification
 - B Eluviation
 - C Illuviation
 - D Laterization
- 1.1c A and B horizon together are called**
- A Solum
 - B Regolith
 - C Fine earth
 - D None of these
- 1.1d Which of the following is a macro nutrient**
- A Copper
 - B Chlorine
 - C Magnesium
 - D Boron
- 1.1e Relative percentage of sand, silt and clay sized particles in soil material is termed as**
- A Soil Structure
 - B Soil Texture
 - C Soil Porosity

D Soil plasticity

1.1f Which of the following is largest soil group of India

- A Alluvial Soil
- B Black Soil
- C Laterite Soil
- D Red soil

1.1g Soil having pH less than 6.5 with highly open texture and massive structure are known as

- A Red Soil
- B Acidic Soil
- C Alkali Soil
- D Saline Soil

1.1h Nitrosomonas facilitates which process

- A Aminization
- B Ammonification
- C Nitrification
- D Volatization

1.1i Study of origin, classification and description of soil is known as

- A Edaphology
- B Pedology
- C Geology
- D Soil biology

1.1j Soil texture can be improved by

- A Adding organic matter
- B Improving drainage condition
- C Proper tillage
- D All of these

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

[05]

1.2a Hygroscopic water in soil is available form of water to plants. (True/ False)

1.2b Which nutrient is known as Key to Life?

1.2c Humic is usually insoluble in water. (True/False)

1.2d Sandy soil are light soils. (True/ False)

1.2e Tillage cannot improve soil structure. (True/False)

Q.2 Short Notes (Attempt any two)

[06]

A Explain illuviation and eluviation.

B Describe soil fertility and soil productivity.

C Discuss ecological importance of soil.

Q.3 Explain in detail (Attempt any two)

[14]

- A What do you mean by Soil structure? Give detailed classification of soil structure.
- B Draw a well labelled diagram of Soil horizon and also give detailed explanation of the different horizons.
- C Explain in detail about the different functions of soil. Explain how soil acts as basis for life. Also highlight the economic importance of soil.

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?