

KATHMANDU UNIVERSITY
End Semester Examination
July/August 2024

Level : B.Sc.
Year : II
Time : 2 hrs. 30mins.

Course : ENVS 209
Semester : I
F. M. : 55

29 JUL 2024

SECTION "B"

[3Q. × 7 = 21 marks]

Attempt *ALL* questions.

1. What are the important physical and chemical properties of soil?
2. Describe the main roles of soil in an ecosystem and link these roles to environmental processes.
3. Which nutrients are essential for plants? Briefly discuss on the availability of these nutrients for plant through soil.
4. List the major soils found in Nepal. Describe them at provincial level or municipality level.

SECTION "C"

[34 marks]

5. Write short notes on (*ANY FIVE*)
 - a. Soil profile
 - b. Land use land cover
 - c. Bulk density
 - d. Soil biology
 - e. Infiltration rate
 - f. Soil organic matter

[5Q. × 4=20]

6. Distinguish between
 - a. Soil formation factors and ecological succession
 - b. Soil aggregate stability and soil structure
 - c. Forest and agricultural soil

[3Q. × 3=9]

7. A soil sample was taken with the help of core of internal volume 160 cm³. It was 260 gram but it had gravimetric soil water content of 20%. Find the bulk density of the soil.

[1Q. × 5=5]

100. 100. 1

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Marks Scored:

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Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date :

29 JUL 2024

SECTION "A"

[20Q. × 1 = 20 marks]

Choose and mark [X] encircle the most appropriate option from each set of choices

1. There are different soil layers mostly in
 Furrow slice Plow layer Subsoil Top soil
2. Clay particles are usually studied with the help of
 Compound microscope Electron microscope
 Naked eye Simple microscope
3. About 4000 years ago, the soil maps are used for land taxation purpose in
 Africa China England India
4. The composition of organic matter in mineral soils
 10% by volume 25% by volume 35% by volume 50% by volume
5. According to USDA soil textural triangle, soil with 20% of clay, 40% of sand and 40% of silt is
 Clay loam Loam Sandy loam Silt loam
6. Climate is important factor for soil formation. The most rapid process for soil formation is in
 Boreal Semi-arid Temperate Tropical
7. The normal movement of water vertically through the surface of the soil is
 Diffusion Infiltration rate Percolation Runoff
8. The study of soil as a habitat for agricultural plants
 Agrology Edaphology Pedology Pelology
9. In the study of soil classification, Munsell colour chart is not applicable for
 Chroma Horizons Hue Value
10. Sand, Silt and Clay are categorised as the soil physical characters of
 Colour Density Minerals Texture
11. The general value of soil water potential in MegaPascal is
 Higher than one Less than zero One Zero

12. The number of essential soluble inorganic compounds necessary for normal plant growth
 8 18 43 105
13. The highest level of soil erosion from agricultural land is due to
 Air Gravity Snow Water
14. It is NOT the form that is used as agricultural lime
 CaCl_2 CaCO_3 $\text{CaMg}(\text{CO}_3)_2$ CaO
15. Soil taxonomy system of USDA has 12 soil _____
 Families Groups Orders Series
16. The amount of micronutrient among the following is highest in soil
 Cu Fe Mn Zn
17. Among the following, most important component to increase soil porosity
 Compaction Excessive tillage Plant roots Puddling
18. Most readily available form of Nitrogen for plants _____
 Nitrate [NO_3^-] Nitrite [NO_2^-]
 Nitric oxide [NO] Ammonia [NH_3]
19. The humus in soil is also an organic collide whose shape is
 Crystalline Hexagonal crystal
 Irregular flakes Non-crystalline
20. One meter wide and one meter depth structured developed due to erosion is called as
 Gully erosion Rill erosion Sheet erosion Splash erosion