



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(Ag)-Hons-2024

Course Name – Fundamentals of Soil Science

Course Code - CC-BAG172(T)

(Semester I)

Library
Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

Full Marks : 50

Time : 2:0 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 20=20

1. Choose the correct alternative from the following :

- (i) What is the predominant element on earth crust?
 - a) Oxygen
 - b) Aluminium
 - c) Iron
 - d) Silicon
- (ii) Who is known as Father of Soil Science?
 - a) Jenny
 - b) Dockuchaiev
 - c) Simonson
 - d) Liebig
- (iii) How much percentage of SiO_2 present in acid igneous rock?
 - a) more than 30
 - b) more than 40
 - c) more than 50
 - d) more than 60
- (iv) What is the structural unit formula of phyllosilicate mineral?
 - a) SiO_2
 - b) Si_2O_7
 - c) Si_2O_5
 - d) Si_2O_8
- (v) What is the average density of earth as a whole (g/cc)?
 - a) 3.5
 - b) 4.5
 - c) 5.5
 - d) 6.5
- (vi) Who outlined five factors of soil formation?
 - a) Jenny
 - b) Dockuchaiev
 - c) Simonson
 - d) Liebig
- (vii) Choose the temperature range for mega thermic temperature regime
 - a) More than 15 degree celsius
 - b) More than 22 degree celsius
 - c) More than 25 degree celsius
 - d) More than 28 degree celsius
- (viii) Who developed International pipette method of soil texture determination?
 - a) G W Robinson
 - b) A H M Andreasen
 - c) Dockuchaiev
 - d) G. Bouyoucos
- (ix) Choose the physical property of soil which does not change with cultural practice?

- a) Soil structure
c) Soil water
(x) Select the names of soil having at least 35% clay separate
a) Sandy soil
c) Clayey soil
(xi) Select the range of bulk density (BD) which limits the root growth (g/cc).
a) 1.5
c) 1.7
(xii) Which type soil structure is most ideal for agricultural purposes?
a) Granular
c) Blocky
(xiii) According to USDA classification, what is the size range (in mm) of silt particle?
a) 0.002-0.02
c) 0.002-0.05
(xiv) What is the study of soil in relation to plant growth called?
a) Pedology
c) Petrology
(xv) Which of the following cation has the tendency to disperse soil particles?
a) Na
c) Ca
(xvi) Choose the name of soil order exhibiting swelling-shrink properties, gilgai microrelief
a) Entisol
c) Inceptisol
(xvii) How much percentages of sedimentary rock present at upper 5 km of earth surface?
a) 15
c) 75
(xviii) What is the density of earth as a whole (g/cc)?
a) 4.5
c) 6.5
(xix) Outline the name of the process of conversion of Gneiss to Schist
a) Thermal
c) Dynamothermal
(xx) Outline the name of process in which mechanical movement of clay and iron oxides from 'A' horizon without undergoing chemical alteration
a) Lessivage
c) Hydrolysis
b) Soil texture
d) Soil temperature
b) Silty soil
d) Loamy soil
b) 1.6
d) 1.8
b) Crumbly
d) Platy
b) 0.002-0.01
d) 0.002-0.1
b) Edaphology
d) Biology
b) K
d) Mg
b) Vertisol
d) Gelisol
b) 18
d) 8
b) 5.5
d) 7.5
b) Hydrothermal
d) Dynamo metamorphism
b) Movement
d) Migration

Group-B

(Short Answer Type Questions)

2.5 x
10=25

2. Outline five different functions of soils. (2.5)
3. Briefly summarize the process of humification. (2.5)
4. Briefly summarize the characteristics of Entisol order of soil. (2.5)
5. Outline the role of relief or topography in soil formation. (2.5)
6. Outline the key concepts or salient characteristics of Vertisols. (2.5)
7. Construct the relationship between bulk density, porosity and particle density. (2.5)
8. Explain the plate like soil structure. (2.5)
9. Explain spheroidal type of soil structure. (2.5)
10. Identify various types of aggregates found in soil. (2.5)
11. Explain the properties of Black soils found in India. (2.5)

OR
Explain the differences between red soils with laterite soils.

(2.5)

Group-C
(Long Answer Type Questions)

5 x 1=5

12. Elaborate the structure of vermiculite with diagram.

(5)

OR
Elaborate different forms of soil consistency.

(5)

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