

Registration No:

Total Number of Pages : 2

AR-2018

B.Sc (Ag)

FIRST YEAR EXAMINATION-JULY 2019

ST-111

FUNDAMENTAL OF SOIL SCIENCES

Time : 2 Hours

Maximum : 50 Marks

(Answer **all** questions of Section – A)

1. Fill in the blanks

(10x0.5)

- i ----- is the major calcium bearing minerals.
- ii ----- is the process of mixing of soils.
- iii Mechanical analysis of soil separates i.e. the percentage of sand, silt and clay is done by ----- method.
- iv In soils, ----- is the prominent minerals of 1:1 type group.
- v C:N ratio for saw dust is -----.
- vi Water at wilting coefficient is held at a force of ----- atm.
- vii ----- group are 2:1 layer silicate non-expanding type minerals.
- viii The laterite soils are those in which ----- is the dominant soil forming process.
- ix Phosphorous is present in the organic matter as ----- and -----.
- x A' horizon of the soils also designated as -----.

2. Tick the correct option

(10x0.5)

- Soil structure best and highly suitable for cultivation
 - Round
 - Crumby
 - Blocky
 - Prismatic
- Available water to plant is higher in
 - Clay
 - Loam
 - Silt
 - Sand
- Horizon with maximum eluviations is
 - A
 - O
 - E
 - B
- C:N ratio Indian soil
 - 12-15:1
 - 400:1
 - 10:1
 - 20:1
- The color of the soil gives indication mainly of its
 - Clods
 - Pedons
 - Solution
 - None of the above
- The recent unit of expression of CEC is
 - Cmol(p+)/kg soil
 - gm/cc
 - Kg
 - unitless
- The association between Cyanobacteria and Lichens
 - Cyanella
 - Glomus*
 - Heterocyst
 - Trichomes



- h) The organism acts a boundary between living and non-living organisms
- 1) Virus
 - 2) Actinomycetes
 - 3) Blue- green algae
 - 4) Azolla
- i) Ideal value of Particle density
- 1) 1.13 gm/cc
 - 2) 1.11 gm/cc
 - 3) 2.56 gm/cc
 - 4) 2.65 gm/cc
- j) Green House Gases has highest concentration of
- 1) CO₂
 - 2) N₂O
 - 3) CO
 - 4) SO₂

3. Match the following

(10x0.5)

A

1. Red soil
2. Biomagnifications
3. Black soil
4. Illuviation
5. Cyanobacteria
6. Goethite
7. Nitrosomonas
8. Organic horizon
9. Bulky density
10. Andesite

B

- a) Nitrifying Bacteria
- b) 1.13 gm/cc
- c) B Horizon
- d) Heptachlor
- e) Igneous rock
- f) Phosphorous
- g) 'O' Horizon
- h) Heterocyst
- i) Regur
- j) FeO(OH)nH₂O

4. Define the following (Answer any five)

(1x5)

- a) Minerals
- b) Sedimentary Rocks
- c) Cation Exchange Capacity
- d) Podzolisation
- e) Cyanella
- f) Mycorrhizae

Sec-B

Answer any five

(5x6)

5. What do you mean by weathering of soil? Explain Chemical weathering with examples.
6. Define Soil Acidity. What are the factors affecting the formation of acid soil?
7. What is bulk density (Bd) and particle density (Pd)? Differentiate between bulk density and particle density. What are the factors affecting bulk density?
8. Define soil pollution. What are the different kinds of soil pollution?
9. Briefly classify soil water from physical and biological point of view. Describe physical classification of water.
10. Define Humus. Briefly discuss all the factors affecting decomposition of organic matter.