Seat No:_____ **Enrollment No:_____**

PARUL UNIVERSITY

FACULTY OF AGRICULTURE

B.Sc.(Hons.)Agriculture Winter 2018 - 19 Examination

Semester: 1 **Date: 05/12/2018**
Subject Code: 20103102 **Time: 10:30am to 1:00pm**
Subject Name: Fundamentals of Soil Science **Total Marks: 50**

Instructions
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.

A. Fill in the blanks. (Each of 0.5 mark) **(05)**

1. _____ is 1:1 type clay mineral.
2. Branch of soil science dealing with the genesis, survey and classification of soil is called as _____.
3. Accumulation of _____ in soil profile is more in calcification process.
4. The CO_2 contain of the cultivated soil is _____ percentage.
5. The solid zone of earth's sphere is known as _____.
6. The cation exchange capacity of kaolinite is _____ meq/100gm.
7. The attraction between clay and water molecule is known as _____.
8. Natural aggregates are called _____ whereas_____ is an artificially formed soil mass.
9. Water remains around the cation as a very thin film, which is called_____.
10. The two metallic elements occurring in greatest abundance in the earth crust are_____.

B. Multiple choice type questions. (Each of 0.5 mark) **(10)**

1 The scientific study of soil is -
a)Earth Study c)Soil Chemistry
b)Soil Science d)Pedology

2 Soil is a _____ dimensional body.
a) One c) Three
b) Two d) Four

3 Water play important role in the formation of rock_____.
a)Igneous rock c)Sedimentary rock
b)Metamorphic rock d)Primary rock

4 When igneous rock are become metamorphic rock due to water called _____.
a)Hydro metamorphosis c)Thermo metamorphosis
b) Dynamo metamorphosis d)Hydrothermal

5 Marble formed from which rock during metamorphosis_____.
a)Sand stone c)Lime stone
b)Shale/ Basalt d)Granite

6 Which is example of 1:1 type clay mineral_____.
a) Illite c) kaolinite
b)Montmorilonite d)Biotite

7 The cation exchange capacity of Montmorilonite is _____meq/100gm.
a) 3-15 c) 20- 40
b)80 – 100 d) 50-70

8 B_1 Horizon in the soil profile is also known as_____.
a)Allivial c)Illuvial
b)Eluvial d)Colluvial

9 Which of the following is *not* a characteristic of a mineral?
a)Crystal structure c)Naturally occurring
b)Solid d)Organic

10 The size of silt particle is _____mm.
a)0.02-0.002 c)< 0.002
b)2.0-0.02 d)< 002.0

11Total porosity is more in :
a)Sandy soil c)Loamy soil
b)Clay soil d)None of A, B, C

12 Relative proportion of sand,silt and clay is referred as _____.

a)Soil texture c)Soil pore

b)Soil structure d)All of the above

13 The particle density of soil is always _____than bulk density in cultivable soil.

a)Less c) Equal

b) More d)Less or eqaul

14_____ system of naming soil separates is commonly followed in India.

a)American c)International

b)English d) European

15 A field capacity water is held with a force of_____ atmosphere.

a)1/3 c) 10

b)1/2 d) 15

16 Condition of soil, when all large and small pores are filled with water is_____.

a)Infiltration c)Unsaturated

b)Saturated d) Suffocation

17 The water held tightly on the surface of the colloidal particles is known as _____water.

a)Gravitational c)Hygroscopic

b)Capillary d)A and B both

18 Two water molecules are held by _____bond.

a)Hydrogen c) Oxygen

b)Neutral d) Hydrogen and Oxygen

19 Particles less than 0.001mm size possess colloidal properties are known as_____.

a)Soil colloids c)Soil silt

b)Soil sand d)Soil clay

20_____ may be defined as the amount heat required raising the temperature of one gram of a substance.

a)Conductivity c)Thermal conductivity

b)Heat capacity d)Specific heat

Q.2 Do as Directed.

A. Define the following. (Any five) **(05)**

1. Weathering
2. Salinisation
3. Regolith
4. Nitrification
5. Soil
6. Eluviation
7. Denitrification

B. Answer the following. (Any five) **(05)**

1. What is Pedology?
2. Enlist master horizons.
3. Give the atomic number of nitrogen element.
4. Enlist factors affecting Atterberg's constants.
5. Enlist methods of estimation of bulk density.
6. What is Humus?
7. What is C:N ratio?

Q.3 Write short notes. (Any five) **(10)**

1. Define soil and enlist uses of soil.
2. Write short note on composition of earth crust.
3. Give the textural classification given by ISSS and USDA.
4. Explain pore space.
5. Discus soil colour.
6. Explain soil temperature.
7. Enlist importance of soil water.

Q.4 Long Questions (Attempt any three) **(15)**

1. What is mineral? Write short note on silicate clay minerals.
2. Explain fundamental soil forming Processes.
3. Write short note on soil profile.
4. Explain general properties of soil colloids.