

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE
B.Sc. (Hons.) Agriculture Winter, 2019 – 20 Examination

Semester: 4

Date: 03/12/2019

Subject Code: 20103252

Time: 02:00 pm to 04:30pm

Subject Name: Problematic Soils and Their Management

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 marks)****(05)**

1. Soil acidity is more common in regions with _____ rainfall.
2. Soil having pH <6.0 is called _____
3. Soil having SAR < 15 and EC is 6 dS/m is called _____
4. Residual Sodium Carbonate (RSC) = _____
5. Essential nutrient requirement for crop growth (Number) _____
6. _____ Erosion is controlled by normal tillage.
7. Phosphorus is measured in instrument _____
8. _____ is used for reclamation of alkaline soil.
9. Potassium is measured in instrument _____
10. _____ Instrument is used for measurement of salt concentration in soil.

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

1. Acid soils can be reclaimed by addition of

a) CaSO ₄	c) HNO ₃
b) CaCO ₃	d) H ₂ SO ₄
2. A soil which has pH is <8.5, ESP >15.0 and EC < 4.0 dS/m at 25 °C is called:

a) Alkaline soil	c) Saline soil
b) Saline-alkaline soil	d) None of these
3. Calcareous soils are those that contain enough free following chemical product

a) Gypsum	c) Both a and B
b) CaCO ₃	d) None of these
4. Na is more available in which soil

a) Alkali soil	c) Saline soil
b) Saline-alkaline soil	d) None of these
5. At lower pH which nutrient is Higher

a) H, Fe, Al	c)) A+B
b) Ca, Na,B	d) All of these
6. _ The main characteristics, which render the alkali soils unfavourable for crop growth is:

a).Excessive concentration of soluble salts	c). Low pH
b). Excessive concentration of soluble Sodium	d). All above
7. The harmful effect of saline soil is due to

a).High osmotic pressure of soil solution	c). Low osmotic pressure of soil solution
b). High pH	d). Low pH
8. Water erosion is also known as

(a) Rainfall	(c) Accelerated erosion
(b) Natural erosion	(d) Human Activity
9. The element which is measured by flame photo meter

a) N	c) S
b) K	d) All of these

10. Process of accumulation of exchangeable sodium in the soil & formation of sodic soils is termed as _____.
- a) Salinization
b) Alkalinization
c) Neutralization
d) None of these
11. Spectrophotometer is used for measurement of _____ nutrients
- a) Phosphorous
b) Sulphur
c) A+B
d) None of these
12. The Major deposit of gypsum is found in _____ state.
- a) Gujarat
b) Rajasthan
c) Madhya Pradesh
d) None of these
13. _____ which of the following the first phase of water erosion_____.
- a) sheet erosion
b) splash erosion
c) Rill erosion
d) Gully erosion
14. Near the canal banks soil become
- a) Acidic
b) Alkali
c) Calcareous
d) All of Above
15. Which nutrient is available at neutral pH
- a) P
b) N
c) Fe
d) Al
16. The saline soil have Salt
- a) <0.1 %
b) >0.1%
c) 1%
d) None of the above
17. When alkali soil also in submerged condition
- a) Flocculated
b) De-flocculated
c) A + B
d) All of these
18. Soil have pH > 8.5, ESP > 15.0 and EC > 4.0 dS/m is also called
- a) Saline Soil
b) Alkali Soil
c) Saline-Sodic soil
d) All of the above
19. The Ca Content in Gypsum
- a) 29%
b) 20%
c) 10%
d) None of these
20. The application of Gypsum in acidic soil pH will be
- a) Increase
b) constant
c) Decrease
d) None of these

Q.2. Do as Directed.

(05)

A. Define the following. (Any five)

- 1.pH 2. Agro-forestry 3. Soil Pollution 4.Alkali soils 5. Wind Erosion
6.Calcareous soils 7.Saline soils

B. Answer the following. (Any Five)

(05)

1. What are the benefits of liming on acidic soils?
2. Name the three types of soil movement erosion which occur during wind erosion??
3. Type of Erosion?
4. Types of problematic soil?
5. Critical difference between saline soil and alkali soil?
6. Name the amendments for acid soils?
7. Which soil nutrient is highly deficient in Indian soil?

Q.3 Write short notes. (Any five)

(10)

1. What is acid rain? Write present CO₂ Concentration in Atmosphere?
2. Point out Acid soil Reclamation.
3. Give the name any six instruments which is used in soil science lab?
4. Enlist the instrument which is used for collection of soil sample?
5. Why gypsum is not apply in acidic soil? Give reason?.
6. What is the function of organic manure in problematic soil? Give detail

Q.4 Attempt any Three/Long Questions/Example

(15)

1. Write down in detail the best management practices that are used to control erosion of both wind and water.
2. How to improve/reclaim alkali soils?Give detils.
- 3.What is Gully Erosion? What Advantages and Dis Advantages of agro—forestry in detail?
- 4.Role of multipurpose trees on salt affected soil? Write in detail.