

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE

B.Sc.(Hons.) Agriculture Summer 2017 - 18 Examination

Semester: 2

Subject Code: 20103103

Subject Name: Soil Chemistry, Soil Fertility & Nutrient Management

Date: 29/05/2018

Time: 10:30am - 01:00pm

Total Marks: 60

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 1.00 marks)****(10)**

1. Buffering capacity of soil means resistance to a change in _____.
2. Acid soil can be reclaimed by _____.
3. Khaira disease of rice is caused by the deficiency of _____.
4. Mg and S are termed as _____ nutrients.
5. Gray speck of oats and marsh spot of peas is due to the deficiency of _____.
6. Chlorosis is observed in upland rice due to deficiency of _____.
7. Hill soils are generally _____ in reaction.
8. N, P and P are termed as _____ nutrients.
9. Alkaline soil can be reclaimed by _____.
10. Oil contains in oil-bearing plant is increased by _____.

B. Multiple choice type questions. (Each of 1.00 mark)**(10)**

1. Which one of the following is not a micronutrient?

a) Magnesium	c) Boron
b) Molybdenum	d) Zinc
2. Which one of the following is not a macronutrient?

a) Nitrogen	c) Potassium
b) Phosphorous	d) Iron
3. In alkaline soils (pH > 7), most inorganic P is found in compounds containing _____.

a) Iron	c) Calcium
b) Aluminium	d) All of the above
4. The following micronutrient is responsible for - Internal cracking in Apple?

a) Iron	c) Boron
b) Zinc	d) None of the above
5. Chelates are important in the regulation of micronutrient availability because they

a) lower soil pH to increase micronutrient solubility	c) combine with micronutrients to maintain them in a soluble form
b) combine with micronutrients to maintain them in a soluble form	d) are responsible for the formation of secondary minerals
6. The micronutrients iron, manganese and zinc are all _____.

a) Anions in the soil solution	c) Made more available at low soil pH
b) They are macronutrients	d) None of the above
7. The important of K _____ is to regulate the supply of the soil for the plants and protects it against loss through leaching.

a) Fixation	c) Attraction
b) Absorption	d) None of the above
8. The following nutrients have a function of plant's ability to resist disease and production of carbohydrates

a) Magnesium	c) Nitrogen
b) Potassium	d) None of the above
9. N, P and K are _____ plant nutrients so their deficiency observed on older leaves.

a) Mobile	c) Constant
b) Immobile	d) Variable

10. The following nutrient enhances the oil formation in oilseed crops.

- a) Sulphur
- b) Nitrogen
- c) Phosphorous
- d) None of the above

Q.2 Do as Directed.

A. Define the following. (Any five)

(05)

1. Nitrogen immobilization
2. Role of bio-fertilizer in soil productivity
3. Denitrification
4. Nitrification
5. Hidden hunger
6. Major nutrients
7. Micronutrients

B. Answer the following. (Any Five)

(05)

1. Enlist the name of sulphur containing amino acids.
2. How you will correct sulphur deficiency in soil?
3. How you would correct Zinc deficiency in plants when observe it at later stage of crop growth?
4. Why additions of organic matter to well drained soils can improve Fe availability?
5. Why Fe deficiency observed in calcareous soils having pH range of 7.3 to 8.5?
6. Which form of soluble iron increases significantly when soils become H₂O logged.?
7. Why crops grown on coarse texture soils are generally more susceptible to S deficiency?

Q.3 Write short notes. (Any five)

(15)

1. What are the functions of Boron in plants?
2. Enlist the name of secondary plant nutrients? Give the functions of sulphur in plants?
3. Classification of nitrogenous fertilizers based on N present in NH₄ and NO₃ or NH₄ and NO₃ form with examples of fertilizers.
4. What is soil testing? What are the objectives of soil testing?
5. What are the functions of Boron in plants?
6. How to reclaim or management of alkali soils?

Q.4 Attempt any three long questions.

(15)

1. What is nitrogen cycle? Explain in details.
2. Give the four groups of P fertilizers with examples.
3. Give the name of major plant nutrients and write down the functions of two major nutrient.
4. Enlist the name of micronutrients? Give the function of iron in plants.