

KERALA AGRICULTURAL UNIVERSITY

B.Sc Hons (Ag) 2010 Admission

Vth Semester Final Examination- January /February -2013

Cat. No: Ssac.3105

Marks: 80

Title: Soil Chemistry, Soil fertility and Nutrient Management (1+1)

Time: 3 hours

I Answer ALL questions

(10 x 1 = 10)

- _____ is often referred as "Kingpin" among essential nutrient required by crops
a. Magnesium b. Potassium c. Iron d. Nitrogen
- Reddening in cotton is caused by _____ deficiency
a. Mg b. B c. Mo d. Cu
- Molybdenum availability is plenty in _____ pH
a. Alkaline b. Neutral c. Acidic d. Highly acidic
- Drought impedes _____ process that leads to N deficiency in crops
a. Mass Flow b. Diffusion c. a & b d. Root Interception
- Gypsum is recommended for reclaiming _____ in soils
a. Acidity b. Salinity c. Sodicity d. Crusting
- All the productive soils are usually fertile (True / False)
- Humus is the ultimate product of organic manures (True / False)
- Nutrient essentiality concept was proposed by _____
- Chemical formula for agricultural lime is _____
- Typical symptom caused by Fe deficiency is _____

II Write short notes on any TEN of the following questions

10 x 3 = 30

- Criteria for essentiality of nutrients proposed by Arnon's
- Explain the terms (a) Mass flow (b) Diffusion and (c) Root interception

3. Differentiate between "Synergism" and "Antagonism"
4. Heavy metals are harder to remediate compared to other pollutants .Why?
5. Suggest diagnostic keys to identify Boron deficiency in crops
6. Which State in India has major part of acid sulphate soils ? Suggest two strategies to reclaim such soils.
7. Zinc deficiency symptoms in rice
8. Impact of pesticide residues on soil and aquatic systems
9. Critical level of nutrients in soils
10. Basic analyses undertaken in Soil Testing Laboratories (STLs)
11. Rapid tissue test for potassium
12. Define A value, L value and Et value

III Answer any SIX questions

6 x 5 = 30

1. Irrigation water quality appraisal
2. Soil Health Card
3. STCR Approach of fertilizer prescription
4. Schematic diagram with reactions involved in symbiotic N fixation
5. What is liming ? How does it improve availability of nutrients in acid soils
6. Active and passive ion transport
7. Dynamic Equilibrium of Potassium
8. Balanced Fertilization of Crops

IV Write an essay

1 x 10 = 10

1. Organic manuring is indispensable despite its nutrient supplying capacity is very meager compared to fertilizers. Justify
2. What are salt affected soils ? Suggest suitable strategies to manage such soils