

KERALA AGRICULTURAL UNIVERSITY
B.Sc. (Ag) Supplementary Examination July 2008

Chem 2103
Soil fertility and nutrient management (2+1)

Max. Marks: 60
Time: 2½ hours

(20x0.5=10)

Part A. Answer all the questions

State true or false

- A1. Tobacco is a highly chlorine-tolerant crop.
A2. K fixation is high in 2:1 type clay minerals.
A3. Dolomite is an Mg containing mineral.
A4. Nitrogen is absorbed by plants both as anionic and cationic forms.
A5. Azospirillum is an associative symbiotic N fixing organism.

Fill in the blanks:

- A6. ----- is a concentrated organic N fertilizer
A7. N serve is a ----- inhibitor
A8. Soil phosphate availability is high in pH range of -----
A9. Apatites are minerals of -----
A10. Blossom end rot is caused due to the deficiency of -----

Choose the right answer from the choices.

- A11. Permanent manurial experiment was first started by a) Robert Warrington b) Boussingault c) Lawes and Gilbert d) Aruthur Young.
A12. Percent K content of mica is a)4 b)6 c)10 d)1
A13. Molybdenum is a constituent of a) Nitrate reductase b) Chlorophyll c) Chloroplast d) Cell wall
A14. 1.5 % of soil organic P is in the form of a)inositol phosphate b)phospholipids c) nucllic acid d) rock phosphate.
A15. Which one of the following is a denitrifying bacteria a) bacillus b) Nitrosomonas c) Clostridium d) Azatomonas
A16. The essentiality of phosphate for plant was established by a) Priestly b) Von Liebig c)Greiss d) Arnon and Stout
A17. Sulphur containing amino acid a) Proline b) Methionine c) Histamine d) Adenine
A18. Bitter spots in apple is due to the deficiency of a) Mg b) Ca c)S d)Bo
A19. The nutrient required for closure and opening of stamina is a) Fe b) Ca c) K d) Mg
A20. Which fertilizer has lowest acidification effect on the soil? a) Ammonium sulphate b) Urea c) Calcium ammonium nitrate d) Ammonium chloride

Part B. Give short answers: (14x1=14)

Distinguish between:

- B1. Ammonification and amination
B2. Tissue testing and plant analysis
B3. Cow dung manure and poultry manure
B4. Rock phosphate and super phosphate
B5. Urea and ammonium chloride
B6. Nitrification and denitrification

Define:

- B7. Integrated nutrient management.
B8. CaCO_3 equivalent

- B9. Crop logging
B10. Tissue testing
B11. Soil fertility

B12 Residual acidity of urea

B13 Luxury consumption

B14 organic manures

Part C. Short answers. Answer only eight questions (8x2=16)

C1. Response function

C2. DRIS

C3. Vermicomposting

C4. What are the concepts of soil fertility evaluation?

C5. What is buffering capacity of soil?

C6. How does the hydrolysis of urea occur in soils?

C7. Fertility index and village fertility map

C8. Chelation

C9. Deductive approach of soil fertility evaluation

C10 Classification of phosphatic fertilizers

Part D. Write short essays for five questions only (5x4=20)

D1. Explain the mechanisms of nutrient ions uptake by plants

D2. Explain the targeted yield approach.

D3. What is the role of soil organic matter in relation to soil fertility?

D4. Enumerate the role of trace elements in plants.

D5. How will you prepare the village level fertility maps?

D6. Advantages and disadvantages of organic manures compared to inorganic fertilizers