

and he that lives upon Hope will die fasting. There are no Gains without pains; then Help Hands, for I have no Lands. At the working Man's House Hunger looks in, but dares not enter. Industry pays Debts, while Despair increaseth them. A Legacy, Diligence is the Mother of Good-luck. God gives all Things to Industry. Then plough deep, while Sluggards sleep, and you shall have Corn to sell and to keep. One To-day is worth two To-morrows. Have you somewhat to do To-morrow, do it To-day. Be ashamed to catch yourself idle.

Theodore Roosevelt in the Twentieth Century Said. I extend pity to no man because he has to work. If he is worth his salt he will work. I envy the man who has a work worth doing and does it well. There never has been devised, and there never will be devised, any law which will enable a man to succeed save by the exercise of those qualities which have always been the prerequisites of success, the qualities of hard work, of keen intelligence, of unflinching will.

(The Philippine Agriculturist, Vol. XIII, No. 8, January 1925).

UNIVERSITY OF MADRAS.

B. Sc. Ag. Degree Examination, 1925.

PART I

AGRICULTURAL ENGINEERING

TUESDAY, 24TH MARCH. 7-10 A. M.

[NOTE.—THREE questions are to be answered in A and THREE questions in B. Questions 3 and 6 are compulsory].

A

1. A heap of earth is stacked for measurement with a trapezoidal section. The bottom of the heap is a rectangle, 25 feet by 10 feet. The slope on the four sides is 1 to 1. The depth is uniformly 3 feet. Calculate the volume.

2. (a) State what you understand by the theorem known as the 'triangle of forces'.

(b) Two hinges on a wall lie on the same vertical line, and are 6 feet apart. Iron rods attached to the hinges are 8 feet and 10 feet long, and their other ends are joined at a point from which a weight of 120 lb is hung. Find the forces in the rods.

3. It is proposed to build a vegetable market, 50 feet long and 12 feet broad, with roof of corrugated sheets carried by iron trusses (or wooden trusses), to be fixed to pillars of old rails. Briefly describe the design you would adopt, and make a dimensioned sketch of the cross-section.

4. What should be the discharge of a centrifugal pump if it is to cover half an acre with 1 inch of water in one hour?

Calculate the size of a masonry rectangular channel whose width is twice the depth, and whose gradient is 1 in 625, to discharge one cubic foot per second when running full. Take the coefficient as 100.

5. (a) With a wheel-plough, how are the depth and width of furrow adjusted?

(b) What kinds of iron are employed for making farm implements? Give examples, with reasons, for using particular kinds of iron.

6. (a) Describe how a two-cycle oil engine differs from a four-cycle engine.

(b) Explain how you would start a four-stroke oil engine of less than 10 H. P.

(c) Point out what the causes may be if the engine fails to start.

7. A kerosene oil engine is to be installed for driving a centrifugal pump, but it is proposed to run the engine on crude oil. Find the size of the engine that has to be purchased, given the following data :—

Discharge of pump, 300 gallons per minute.

Total lift, 66 feet,

Efficiency of pump, 40 per cent.

Loss of power when running on crude oil, 15 per cent.

8. Describe, with sketches, *one* of the following :—a winnowing machine, a bone disintegrator, *or* a cup-feed seed drill.

ANIMAL HYGIENE.

TUESDAY, 24TH MARCH. 1—4 P. M.

[NOTE—THREE questions are to be answered in A and THREE questions in B. Questions 1 and 5 are compulsory].

A

1. (a) Describe briefly the anatomical situation, the relative position, and the structure of the uterus in the cow.

(b) What are the essential appendages associated with foetal life, and what purpose do they serve ?

2. How will you deal with an outbreak of—(a) Malignant sore throat, (b) Black quarter, and (c) Scale in sheep ?

3. What are the signs of health in cattle ? Describe the clinical symptoms of catarrh in a calf. How would you treat a case ?

4. What do you understand by active and passive immunity, and how is each applied in dealing with rinderpest ?

B

5. (a) Describe the general circulation of blood.

(b) Illustrate, by a diagram, the heart of an ox, showing the different cavities.

6. What are the causes and symptoms of the following :—
(a) Choking, (b) Hoven, (c) Impaction of rumen in cattle, and (d) Gid in sheep ?

7. (a) Give the causes of abortion in the cow.

(b) Describe how you would deal with such a case in a herd.

8. (a) What are the points of a Leghorn, a Light Sussex, a Rhode Island Red, and an Austrolop ?

(b) Describe the merits of different breeds in selecting a pen for a farm.

CHEMISTRY

THURSDAY, 26TH MARCH. 7-10 A. M.

[NOTE —THREE questions are to answered in A and THREE questions in B. Questions 3 and 6 are compulsory].

A.

1. What is the 'Periodic Law'? Explain fully the relationship that exists between carbon and silicon in the periodic classification of elements.

2. Write the constitutional formulæ of glucose, lævulose, and sucrose. How can they be distinguished? Explain the reasons for the differences in their reactions?

3. What is indigo? Explain the reactions involved in the manufacture of indigo synthetically and from the indigo plant. State what happens when indigo is oxidized, reduced, and distilled respectively.

4. Explain the reactions of the following reagents in the study of organic compounds:—(a) acetic anhydride, (b) nitrous acid, (c) sodium ethylate, (d) hydrogen cyanide, (e) phenyl hydrazine, (f) hydriodic acid, (g) alcoholic potash, and (h) Fehling's solution.

B.

5. Write short notes on—polymerism, isomerism, metamerism, and stereo-isomerism. Illustrate by examples.

6. What do you know of the absorptive powers of soils for nitrates, ammonia, phosphates, and potassium salts? Explain the nature of the phenomena, and point out their importance in practical agriculture.

7. Is there any relation between the fertility of a soil and the activities of micro-organisms in it? Explain, with reasons.

8. Discuss the utility of the chemical analysis of a soil in determining its fertility and selecting a manure to increase the same.

AGRICULTURAL ZOOLOGY

THURSDAY, 26TH MARCH. 1—4 P.M.

[N.B.—THREE questions are to be answered in A and THREE questions in B. Questions 4 and 5 are compulsory].

A

1. Explain briefly, with the help of diagrams, the main points in the comparative morphology of *Paramæcium*, Cockroach, and Fowl.
2. Describe the peculiarities in the life-histories of a tape-worm, the horse bot, a potter wasp, and a house mosquito.
3. Write what you know of the insect friends of the farmer, pointing out in what manner they are helpful to him and how he can utilize such help with advantage to himself.
4. Point out briefly the defects in the existing methods of Sericulture in South India, with your suggestions, if any, to improve the status of the industry.

B

5. State what you know of the life-history of the Red Hairy Caterpillar (*Amsacta albistriga*) of South India, and indicate what measures you would adopt to bring the pest under control. Mention two other Hairy Caterpillars that you know of, and briefly state wherein they differ from the above pest as regards their life-history.
6. What are the aims of the Madras Diseases and Pests Act? State under what conditions and against which pests the Act can, in your opinion, be advantageously enforced in South India.
7. Describe three of the more serious pests of oil-seeds in the province of Madras, and indicate the measures that you would recommend to bring them under control.
8. Write short notes on the following:— a. Hyperparasite, b. Fumigation, c. Bee-keeping in India, and d. Repellants.

BOTANY I,

27TH MARCH 1925, 7—10 A. M.

[Only FIVE questions are to be answered. All Candidates must answer Questions 1 and 2 and are expected to give examples and sketches wherever necessary].

1. Describe the position, structure, and development of medullary rays.

2. Give an account of the characteristics of Malvaceae and Solanaceae, and mention some plants of these families that are of economic importance.
3. What is meant by prefoliation or ptyxis? Give an account of the various forms, with examples.
4. Describe clearly the variations that you have observed in the gynaecium of flowers.
5. Explain the morphological nature of the tendrils in the following plants, giving in each case your reasons:—*Vitis vinifera*, *Cardiospermum Halicacabum*, *Bauhinia anguinæ*, *Pisum sativum*, *Gloriosa superba*, and *Bignonia unguis-cati*.
6. Explain the following terms:—chalaza, vacuole, raphides, tyloses, cladode, androgynous, tetradynamous, pyxis, cyathium, and strophiole.

BOTANY II.

27TH MARCH 1925, 1—4 P. M.

(N. B.—You are to answer Questions 1, 2, and 4 and any two of the remaining questions. You are expected to give examples and sketches wherever necessary).

1. Give an account of the reproductive process in Ferns, and compare it with the same process in Angiosperms.
2. Describe the thallus of the gametophyte of any liverwort that you have studied, pointing out its adaptation to its mode of life.
3. Mention the fungi that attack seeds during germination, and give an account of the life-history of any one of them.
4. Describe fully the method by which you would determine the species of fungus causing any particular disease in any higher plant.
5. Compare the mode of nutrition in a fungus with that in an alga.
6. Name the fungi which affect the cholam (*Andropogon sorghum*) crop; and explain, in the case of any one fungus, its mode of entrance and development in the host and the methods you would adopt to prevent the attack.

AGRICULTURE. I

SATURDAY, 28TH MARCH. 7-10 A. M.

[Only six questions are to be answered. All Candidates must attempt Questions 1 and 2.]

1. Describe the composition of any igneous rock, the result of weathering actions upon it, and the character of the soil which is formed from it.
2. What are 'weather' charts? How are they useful to the ryot?
3. Describe the suitable rotation of crops for heavy land and explain briefly the principles on which it is based.
4. Describe the disc-harrow and explain for what purposes it is useful.
5. What is meant by tillage? Explain its objects. What are the useful tillage implements in use on the Central Farm and discuss their uses.
6. Write short notes on—porosity, air space, surface tension, capillarity, subsoiling, mulching, wrapping and hilling in soil.
7. Compare the economy of nitrogen manuring between the following manures:—(a) Nitrate of Soda, (b) Sulphate of Ammonia, (c) Nitrolim, (d) Cake feeding, (e) Growing daincha for green manure, and (f) applying wild indigo leaf.
8. A ryot owns a good well with plenty of water in it and there are two single mhots working. Explain the ways or method by which maximum area can be commanded by working the two mhots.

AGRICULTURE II.

SATURDAY, 28TH MARCH. 1—4 P. M.

1. A reserve forest is being deforested. State briefly the points you would consider in selecting such field for a mixed agricultural farm.
2. A level clay loam field measuring 5 chaus by 3 chains is waterlogged and requires underground drainage. Draw a plan of your proposed drainage system. Enumerate, but do not discuss, the points you would observe in preparing the plan. Calculate the cost of drainage if tiles cost 5 annas per rood, labour for cutting 4 annas, and labour for filling one anna per rood for furrow drains, and 30 per cent. extra for main drains. [1 rood=5½ yards].

3. *Either*, Describe a mechanical winnowing machine. Explain how it can be adjusted to clean different classes of grain. Illustrate your answers by sketches.

Or, Describe a disk plough. State the various adjustments and their effect on the working of plough. Discuss the utility of (a) the disk plough and (b) the share plough, in ploughing black cotton soil in the hot season.

4. Virgin lands are always fertile. Examine this statement and give your own views as to its accuracy. Enumerate any exceptions you are acquainted with.

5. *Either*, An agent offers a compound fertilizer with a guaranteed analysis of 5 to 8 per cent nitrogen, 20 per cent. soluble phosphates, 5 per cent insoluble phosphates and 5 per cent potash. What method would you adopt in valuing this fertilizer? Would you consider the above analysis sufficient for your valuation.

6. *Or*, Field No. 20 in the Central Farm is intended for tobacco. Describe the preliminary cultivation you would consider necessary (a) after ragi harvested in September and (b) fallow from March. What fertilizer would you use. State the rate and method of application.

PART II.

BOTANY. I.

MONDAY, 30TH MARCH. 7—10 A. M.

(NOTE.—You are to answer questions 1 and 2 and any three of the remaining questions. You are expected to give examples and sketches wherever necessary.)

1. Describe the arrangements existing in Angiosperms to facilitate the passage of gases.

2. Give a botanical account of Pani Varagu (*Panicum miliaceum*), with special reference to its habit, root-system, structure of inflorescence and flower, and state how you would distinguish it from Samai (*P. miliare*).

3. Explain the importance of pruning fruit trees. What points should be determined before commencing the operation in any particular variety.

4. Describe the process of fertilization in flowering plants and the structure of the ovule when it is ready for fertilization.

5. What parts of the following plants are of economic importance, and to what uses are they applied :—*Crotalaria juncea*, *Nicotiana Tabacum*, *Manihot utilissima*, *Ricinus communis*, *Arachis hypogaea*, *Cocos nucifera*, *Allium cepa*, *Carum Copticum*, and *Amarantus gangeticus*?

6. Describe the means adopted by plants for the prevention of excessive loss of water.

BOTANY II

MONDAY, 30TH MARCH 1—4 P. M.

(NOTE.—*You are to answer questions 1, 2, and 3 and any two of the remaining questions. You are expected to give examples and sketches wherever necessary.*)

1. Give an account of reduction division of the nucleus, and explain its bearing on heredity.

2. Explain the means, other than carbon assimilation, adopted by plants to obtain energy for performing their vital functions.

3. Explain clearly the characteristics of the seeds in F 1 and F 2 generations when crossing is effected between a pea plant producing wrinkled seeds with yellow cotyledons and another having round seeds with green cotyledons, the character round and yellow being dominant.

4. Discuss in detail the general principles to be observed in the selection of seed for crop production.

5. Give an account of how green plants dispose of the food materials they manufacture.

6. What considerations would guide you in deciding whether 'selection' or 'hybridization' would be the more suitable method to be followed in the improvement of any crop?

CHEMISTRY. I.

TUESDAY, 31ST MARCH, 7—10 A. M.

(NOTE :—*Only six questions are to be answered. Questions 4 and 8 are compulsory.*)

What do you know of the lime requirements of South Indian soils? Explain the effect of lime on different soil types of the Presidency.

2. State clearly what is meant by enzyme action. Explain how a knowledge of enzyme action is essential for the proper understanding of several changes taking place in plants and animals and also in many industrial processes. Illustrate your answer with two examples of each kind.

3. What are the materials suitable for making composts and what precautions are necessary in making them? Explain the changes which take place during composting and state what you know of the manurial values of different kinds of composts.

4. (a) What factors will you take into account in the purchase, valuation, and use of the following manures :—(i) bonemeal, (ii) basic slag, (iii) flour phosphate, (iv) concentrated superphosphate, and (v) reduced superphosphate?

(b) What will be the content of phosphoric acid in good samples of each of the above?

5. What is meant by 'protein consumption'? Explain the effect of lean meat, lard, and starch, when fed alone or in combination, on the protein consumption of an animal. How would you determine the gain or loss of flesh in an animal during a digestion experiment?

6. Starting with fresh milk, explain, with reactions, how a good cheese of the Cheddar variety can be prepared. If cows' milk and buffaloes, milk are both available, state, with reasons, which milk you would prefer and what would be the difference in the cheese made. Discuss the possibility of making Cheddar cheese at Coimbatore.

7. Write short notes on—(a) available plantfood, (b) minimum cropping value, (c) nutritive ratio, (d) rancidity of butter, (e) absolute water capacity of soils, (f) crude fibre, (g) radiobacter, and (h) limiting factor.

8. Write a short account of the phenomenon of colloidal solutions, as compared to true solutions, as they exist in plant tissue. Bring out the significance of the term, 'two-phase system', as applied to colloidal solutions, in the translocation of dissolved material in the plant tissue. Explain how a living plant containing 90 per cent. of water maintains a rigid structure.

CHEMISTRY. II.

TUESDAY, 31st MARCH, 1—4 P. M.

[NOTE.—*only six questions are to be answered. Questions 2 and 7 are compulsory.*]

1. Describe the nature of the changes going on during the opening of seeds in general and their germination later on.

2. Explain the term 'water requirements of crops'. If it in any way influences by manures? Explain, with reasons.
3. What happens when the same crop is grown on a field continuously without any manure for a number of years? Explain, with reasons.
4. Describe the changes going on in farmyard manure during storage, and state the precautions necessary to make good manure.
5. Explain what happens when ordinary acid superphosphate is used as a manure in (a) red soils, (b) heavy paddy soils, and (c) black cotton soils.
6. Discuss the relative merits of straw, hay or silage, and oil-cakes as cattle foods.
7. What are the general principles involved in compounding and fixing rations for growing young stock, working animals, and dairy cattle?
8. What do you know about the composition of cows' milk, and how are its quality and quantity influenced?

AGRICULTURE I.

WEDNESDAY 1ST APRIL 7-10 A. M.

[NOTE.—Only six questions are to be answered. All candidates must attempt Questions 1 & 2.]

1. Explain the factors which determine the seed rate of the various crops. State how much seed is required per acre for the following. Wet paddy, dry cholam, tenai, ragi, gingelly, tobacco, turmeric and chillies.
2. Compare and contrast cane cultivation in the Circars with that in the Coimbatore District.
3. Describe the working of the threshing machine, illustrating it with a diagram, and state what labour is required for threshing and cleaning 1000 lb. of grain of:—ragi, cholam, tenai and bengal gram.
4. Discuss the several points that govern the cost of producing (a) 100 lb. of milk, and (b) one ton of farm yard manure.

5. Work out the cost of a day's cattle labour on the central Farm allowing 250 working days in a year.

6. How are non-credit co-operative societies more useful to the agriculturists than credit societies? Explain how such societies are organised and worked.

7. Trace the relationship between agricultural wages and prices and examine the factors which determine them.

8. Explain briefly the important points that are to be taken into consideration in selecting a site for an experimental farm.

AGRICULTURE, II.

WEDNESDAY 1ST APRIL 1—4 P. M.

[NOTE.—*Only six questions are to be answered. All candidates must attempt questions 1 and 2.*]

1. What are the various methods by which a race of plants can be improved? Describe the methods adopted in detail. Mention the lines along which work of this nature is being done in this country.

2. Explain the laws of "demand and supply." What are the causes that tend to their fall or rise? Explain what is immediate effect of such changes would be?

3. Under what conditions is the practice of green manuring successful? Quote some instances where this practice is unsuccessful. What will be the advantage to a cultivator who uses green manure systematically compared with another who uses only green leaf?

4. You are asked to introduce sugar-cane in a new tract. What points will you consider before you set on your venture? What are the working expenses of a farmer who takes your advice and plants over an area of two acres and what would be his gross and net returns? What advice would you give him generally in the cultivation of the crop?

5. Enumerate the various breeds of cattle, in the Presidency stating the localities in which they are found. Describe in detail the characteristics of a breed noted for (a) draft and (b) milk purposes.

6. Draw the ground plan and elevation and give internal dimensions, of a byre for 50 buffaloes in the Coimbatore district. What would be the approximate returns per annum if the milk is utilized under the following conditions.

- (a) When sold as such, four miles from the farm ;
- (b) When converted into butter ;
- and (c) When converted into ghee ?

How will you utilize the waste products, and how would you propose to maintain the same quantity of milk throughout the year.

7. Two blocks of light loamy soil containing 12 acres of dry and 3 acres of garden land under a well are situated 4 and 20 miles respectively from an agricultural station. It is intended to take either of them on a seven years' lease for groundnut experimental purposes. The lease is the same in both cases. State how you would stock the farms and run them, What would be the running capital required in each case during the first year of experimental work. What buildings would be necessary in each case? How would you lay them out for experimental purposes, and what precautions would you take in doing so ?

AGRICULTURAL ESSAY.

THURSDAY 2ND APRIL 7-10 A. M.

Write an essay on one of the following subjects:—

Either

The need and scope for an economic inquiry among the agricultural classes of the Presidency.

Or

The improvement of indigenous cattle by imported bulls.

BOTANY, PRACTICAL.

PAPER I.

15TH APRIL 1925.

1. Describe with necessary sketches A and B and refer to their families giving reasons.
2. Write critical notes on C, D, E, F and G.
3. Identify the weeds H, I and J and explain how they are troublesome.
4. Viva-Voce- -Physiological experiments.

Specimens given.

1. (a) *Andropogon sorghum* Infl.
(b) *Medicago sativa* branches with flowers and fruits.
2. (c) Tubers of *Gloriosa*.
(d) *Lippia geminiflora* Infl.
(e) *Cestrum aurantiacum* Infl.
(f) *Cladodes* of *Casuarina* and cones.
(g) *Duranta* fruits.
3. (h) *Leucas verticaefolia*.
(i) *Alternanthera echinata*,
(j) *Commelina bengalensis*.

PART II.

16TH APRIL, 1925.

1. Cut sections of the material A and explain with sketches of the various parts.
2. Identify B, C, D and E stating any special features that you notice
3. Dissect and label the parts of F, G and H and state their functions wherever possible.
4. Viva Voce-Respiration. Callus formation and cutting with roots.

Specimens given.

1. (a) Root of cotton plant.
2. (b) Sandal haustorium,
(c) *Gomphrena* spike with seedlings.
(d) *Ochva* fruits.
(e) Section of *cucurbita* ovary.
3. (f) Castor seedling.
(g) Wheat seedling.
(h) *Carthamus* heads.

AGRICULTURAL CHEMISTRY.

1ST PRACTICAL.

20TH APRIL 1925.

1. Estimate the percentage of phosphoric acid retained by given soil with the solution of phosphate provided.
2. Estimate the percentage of Crude Fibre in sample of Rice bran.
3. Estimate the amount of ammonia present in sample of Rain-water, in parts per 10000.

NOTE.—Unfinished work to be left over and completed next day.

IInd PRACTICAL.

1. Continuation of previous day's unfinished work.
2. Report on sample of Manure Mixture.
3. Identify the carbohydrate in stoppered bottle and prepare its osazone for microscopic examination.
4. Oral Examination.

AGRICULTURE 1ST PRACTICAL.

17TH AND 18TH APRIL 1925 FORENOON.

1. Prepare butter from the quantity of cream supplied to you.
2. Record the details of your work on a sheet of paper provided.
3. Oral Examination.

IInd PRACTICAL.

(WHOLE DAY) 17TH AND 18TH APRIL 1925, AFTERNOON

1. Adjust the Monsoon plough to suit the cattle pair No. take it to field No. 37 and split in the plot assigned to you.
2. Award marks to the method of ploughing as found in the following field Nos. 52 B, 58, 60 B and C, 61 and 62, taking 100 as the maximum. Give reasons for your awards.
3. The field in front of you is sown to Chitrai cholam and covered. Prepare one bed of normal size for irrigation and form an irrigation channel 5 yards long.
4. Assemble the various parts of the improved plough placed before you.
5. A ryot to the east of Farm Wetlands owns 25 acres of paddy fields. He cultivated in 1924-25 five acres with G. E. B. 24, 10 acres with Tulukkasamba, 10 acres with Sinnasamba. Prepare :—
 - (a) A cultivation sheet for seed bed for G. E. B. 24.
 - (b) A cultivation sheet for a field of 2 acres of Tulukkasamba
 - (c) Balance sheet for 25 acres.
6. Orals.

BOTANY, PRACTICAL.

PART I.

FRIDAY, 3RD APRIL.

1. Describe fully the specimen *a* and refer it to the Family.
2. Write full morphological notes on *b, c, d, e, f, g, h,* and *i.*
3. Identify the slides *j, k,* and *l.*
4. Make preparation of the specimen *m* and identify it.
5. Describe and determine the diseases in *n, o* and *p.*

Specimens given.

1. (*a*) A branch of *Hamelia Patens* with flowers and fruits.
2. (*b*) Solid bulb of *Polianthis*
 (*c*) Fascicles of flowers of *Polyalthia*
 (*d*) Inflorescence of *Antigonon* with tendrils.
 (*e*) Inflorescence of *Dardalacanthus*
 (*f*) Fruits (dehiscing) of *Bignonia* and *Holoptelea*.
 (*g*) Inflorescence of *Alyssiun*.
 (*h*) Leaf tendril of *Bignonia*.
 (*i*) *Russelia* shoots.
3. (*j*) Section of dicote leaf (*Datura*)
 (*k*) " the thallus of *raichantia*
 (*l*) " spores of the Fungus, Oospores of *phytolethus*.
4. (*m*) Stem of *Datura*.
5. (*n*) *Aecidia* of on *ocium*.
 (*o*) *Ephelia* on paddy.
 (*p*) *Scelorigpora graimini cola* on *Pennisetum typhoideum* ear heads.

CHEMISTRY, PART I.

7TH APRIL 1925.

1. Estimate the percentage of sand and phosphoric acid in sample of bone ash (bottle)
2. Estimate the percentage of chlorine volumetrically in sample of chloride (weighing bottle)
3. Make a qualitative examination of solid (test tube)
4. Oral Examination,

AGRICULTURE, PRACTICAL PART I.

4TH APRIL 1925.

1. Assembling and adjusting a Monsoon plough.
2. Yoking bullocks and taking plough to the Field.
3. Ploughing as per direction.
4. Orals.

ENGINEERING, PRACTICAL.

(WHOLE DAY) 8TH APRIL 1925.

1. Oral Examination on Civil and Mechanical Engineering with reference to buildings and machinery in the College.

1. *Chain Survey.* A, B and C are bannerols. Chain along these sides and fix up the front four corners of the students pavilion and also 2 bannerols marked X and Y and also calculate the area A B C.

2. *Levelling.* Start at the Northwest corner of the bottom step of the Union building marked in pencil. Proceed taking level round the New College and close on the masonry water tub Southwest corner marked in tar. On your way touch the top of a wooden peg driven in the ground at the Southwest recess of the New College.

3. *Workshops.* Out of the wooden piece given to you, make a piece of rectangular section of desired dimensions.

ANIMAL HYGIENE.

PRACTICAL, PART. 1.

WHOLE DAY 6TH APRIL 1925.

1. Identification of drugs and their uses and doses.
2. Handling of cattle and sheep.
3. Dissection.
4. Identification of surgical instruments and their uses.
5. Drenching, bandaging, throwing and securing of cattle.
6. Detection of laurence in cattle.
7. Determining the age of cattle.
8. Oral examination on prevention of contagious diseases including simultaneous inoculation etc.

AGRICULTURAL ZOOLOGY.

PRACTICAL. PART II.

1. Dissect out the alimentary canal of the specimen provided. (Cockroach) and make a diagram to show the different parts.
2. (a) Identify the specimens provided.
(b) Pick out insects of economic importance from the box of specimens provided.
3. Examination of collection boxes of each candidate and oral.

CORRESPONDENCE.

From

T. Sambandham Pillai,

Murungapalayam Street

VILLUPURAM.

Villupuram,

Dated 4th March 1925.

To

The Editor, Madras Agricultural,

Students' Union Journal.

Sir

Mr. R. D. Anstead Director of Agriculture, Madras and Mr. D. Anandha Rao, Deputy Director of Agriculture, IV Circle, paid a visit to Arasamangalam, a village in Villupuram Taluk on the 3rd morning. They saw about 10 acres of Cambodia cotton and sugarcane (standing crops) introduced by the department in the village. A landlord who conducted the departmental improvements in his lands gave one appreciation letter to the Director of Agriculture. The letter was read to the other villagers for their understanding about the benefits of the improved method. I request you to publish the same in your valuable Journal so that other ryots may be benefited by the experience of the mirasdar at Arasamangalam.

Yours sincerely,

T. Sambandham Pillay.