

CHRISTIAN SOCIAL SERVICES COMMISSION- (CSSC)
NORTHERN ZONE JOINT EXAMINATION SYNDICATE (NZJES)



FORM FOUR PRE-NATIONAL EXAMINATION
AGRICULTURE 2
MARKING SCHEME

1. (a) (i) procedures of determining soil pH using pH indicator die
- ❖ Measure about 5g for each of specimen A1 and A2
 - ❖ Put a measured specimen A1 and A2 into a separate test tube
 - ❖ Using spatula, add barium sulphate powder and mix it well with both specimen A1 and A2.
 - ❖ Add distilled water and few drops of pH colour indicator dye to the mixture of both specimen A1 and A2.
 - ❖ Cork the test tube and shake the mixture vigorously to ensure thorough mixing.
 - ❖ Allow the content to stand for 45 minutes
 - ❖ Observe the clear area formed in the middle of the test tubes.
 - ❖ Match the colour of the solution with that of colour chart.

8 POINTS @ 1 MARK = (08 Marks)

- (ii) significant of determining soil Ph

- ❖ To know the pH of the soil hence the type of crop to be grown.
- ❖ It determines microbial activities.
- ❖ It affects the solubility and availability of soil nutrients.
- ❖ It determines the type and amount of amendment needed to the soil.
- ❖ It helps to control diseases to some crops.
- ❖ It influences decomposition of organic matter.

Any three points 1 marks@= 03 marks

- (iii) crops to be grown in soil sample A1 and A2

- ❖ A1 (acidic soil) = tea, paddy, cucumbers, broccoli, squash, onion, blueberries etc.

❖ A2 (alkaline soil) = Pea plant, beans, spinach, cabbage, lettuce, Barley (0.5@= 1 mark)

(iv) Reason for adding BaSo₄

❖ It allows the flocculation or precipitation of soil particles (**1 marks**)

(v) Causes of soil acidic

❖ Heavy rain or acidic rain

❖ Use of acid forming fertilizer

❖ Carbon dioxide adsorbed during Root respiration.

❖ Aluminum ions that are adsorbed on the soil colloidal particle

1 mark @ = 04 Marks

(vi) Managements of soil sample A1 (acidic soil) and A2 (alkaline soil)

❖ Sample A1 (acid soil) = liming process

❖ Sample A2 (alkaline) = acidification of the soil.

1 mark @ = 2 marks

1.(B)

i. Specimen E is rip saw and it is used for cutting wood along the grain (**2 Marks**)

ii. It has large sized teeth (**1 Mark**)

iii. It has small number of large teeth which are set at an angle (slanted upright) to facilitates cutting along the grain (**1 mark**)

iv. materials used together with specimen E

- Hammers
- Planes
- Hack saw
- Carpenters square
- Pliers

Any four materials (0.5 @ = 2 marks)

2. (a)

- (i) The aim of the experiment is to test for mastitis in fresh milk. **(01mark)**
- (ii) The observation from the experiment
- ❖ The black surface of the strip cup shows the lumps (clots) and appearance of blood in milk sample.
 - ❖ Watery appearance presence. **(02 marks)**
- (iii) The conclusion from the experiment is:
- ❖ Due to the presence of lumps (clots), blood and watery appearance indicating the fresh milk (sample)is from the cow affected by mastitis disease, **(02marks)**
- (iv) Five predisposing factors for mastitis:
- ❖ Irregular milking schedule
 - ❖ Poor hygiene of the cow's udder
 - ❖ Contaminated food and water
 - ❖ Poor sanitation of the cow's barn
 - ❖ Teat injury and sore
 - ❖ Genetic factors
 - ❖ Level of milk production **(Any five (05 marks@1))**
 - ❖ Age of the cow.
- (v) Measures to be taken by livestock keepers:
- ❖ Observe hygiene
 - ❖ Immediate treatment of infected, cows to avoid spread of the disease
 - ❖ Test for mastitis before milking to avoid spread of the health cow
 - ❖ Applying milking jelly to prevent drying of teats
 - ❖ Infusing long-acting antibiotic into the teat canal during drying off period
 - ❖ Cull those animals which do not respond to treatment. **(Any five (05 marks@1))**

(b) specimen M answers

- i. Tomato late blight **(1 mark)**
- ii. Spread of tomato late blight
- ❖ Contaminated equipment's.
 - ❖ Through irrigation water
 - ❖ Infected planting materials

- ❖ Through spores spread by wind and rain.
- ❖ Infected plant debris.

(Any three points 1mark@= 3 marks)

iii. Observable symptoms of the disease

- ❖ Water-soaked spots on leaves
- ❖ Rapid enlargement of the leaves.
- ❖ Dark brown to black coloration of the leaves and stems.
- ❖ Brittle and shriveled stem
- ❖ Rotting of the infected fruits
- ❖ Firm and leathery texture of the fruits

Any three (3) point (1 mark @ = 3 marks)

iv. Treatment to restore the health of the plant

- ❖ Use of appropriate fungicide e.g., mancozeb, Copper sulphate etc. **(1 mark)**

v. Measures to control the disease

- ❖ Remove of infected plants
- ❖ Field sanitation.
- ❖ Mulching with plastic or organic materials.
- ❖ Crop rotation.
- ❖ Proper spacing
- ❖ Use of plants resistant variety
- ❖ Use of fungicide
- ❖ Managing humidity.

(Any two points 1 mark@=02 marks)