**AGRICULTURE PAPER 1**

**SECTION A (OBJECTIVES)**

1. C 6. A 11. D 16. D 21. B 26. C

2. D 7. C 12. C 17. A 22. B 27. B

3. C 8. D 13. D 18. C 23. B 28. C

4. A 9. C 14. C 19. D 24. C 29. C

5. C 10. B 15. A 20. B 25. A 30. D

**SECTION B**

31. a(i) At discharge NH4+ concentration increases rapidly due to their increase from the bio chemical breakdown of the sewage half way down the stream NH4+ decrease gradually due to their absorption by algae/aquatic plants. (2mks)

(ii) At the point of discharge the dissolved O2is high and constant after discharge dissolved O2 decreases rapidly reaching lowest levels half downstream due to its use up by aerobic bacteria as they decompose the sewage, later O2conc begins to rise gradually due to its dissolution from the atmosphere. (2mks)

(iii) At point of discharge concentration increases progressively as the sewage is dumped, downstream concentration decreases as the water disperses the sewage and decomposition of the sewage. (2mks)

b)

* eutrophication increase in growth of aquatic plants due to increase in the amount of nutrients in water
* Death of aquatic animals due to reduced amount of oxygen in the water as it is being used by bacteria to breakdown sewage. (2mks)

c)

* Strict regulation
* Use of treatment of sewage before it is dumped in the water by oxidation ponds.

32 a) This is the difference between the value of total revenue of an enterprise and variable costs of an enterprise.

Gross margin = (P x Q) – V.C/P = unit price, Q = quantity produced, VC – variable costs

b)

* To measure how profitable each enterprise is on a farm
* To find out which enterprise is more profitable so as to expand it
* To find out how the costs of production are being used in each enterprise.
* To compare the profitability of enterprises of one farm with another in the same area. (3mks)

c) Total production = 100,000kg

**Variable costs Fixed costs**

Ploughing = 50,000 Rent = 20,000

Seeds = 10,000 Insurance = 15,000

Weeding = 70,000 Depreciation = 30,000

Pesticides = 20,000 Total = 65,000/=

Harvesting = 20,000

Transport = 10,000

Total = 180,000

GM = Total revenue – variable costs

Total revenue = 100,000 x 1000 = 100,000,000/=

= 100,000,000 – 180,000 = 99820000

GM/Hectare = 99,820,000 = 19964000

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33. a) The state of being male or female (used in reference to social and cultural differences rather than biological ones.

b) - Proportion of men to women

- The higher the number of women the higher the agricultural production because women are more involved in agricultural production

- More men in a village implies more capital involved in agriculture

- When there are more men, there is more innovation and more technology

- Women involved in agriculture are less educated (3mks)

c)

* Health
* Land laws
* Capital
* Education training
* Culture/polygamy
* Availability of information
* Extension services 5mks

34.a) Roof -------gutters ---------sieve ----------tank ---------tap (5mks)

b) Source of water should be protected to avoid contamination

* Flash out the first rain to avoid dirt from draining the tank
* Flee flow drainage – stagnant water offers good breeding ground for pathogeus
* Water should be filtered to improve quality e.g. through sand
* Length of storage water should be stored for a long time to kill germs
* Treatment – water should be treated using chlorine to kill germs
* Cover the water to reduce contamination
* Clean the water tank to remove dirt. (5mks)

35. a) Sometimes should be allowed between spraying of pesticides and consuming of the products in order to allow the breakdown of pesticides rendering them non-toxic to human beings. (2mks)

b) Causing abnormal tissue development some herbicides will cause abnormal growth of tissues, gall formation, interfere with plant growth e.g MCPA, Benzoic acid 2, 4-D

* Inhibiting nitrogen metabolism – interfere with the DNA, RNA e.g.Triazine, enzymatic interference.
* Kill the cell – ability of herbicide to penetrate the cell wall and destroy it and the chemical enters the cytoplasma killing the cell prevent further cell division
* Inhibiting photosynthesis – some herbicides interfere with chlorophyll formation e.g Atrazine, Uracil
* Inhibiting respiration – some herbicides cause acute poisoning or block the movement of the materials from the site of manufacture. (3mks

c)

* Concentration
* Temperature
* Soil moisture content
* Nature of the leaf
* Growth stage of the weed
* Degree of wetting
* Type and nature of herbicide (5mks)

36. (i) Soil profile is the vertical section of the soil from top to bottom of the parent rock. While soil catena is the sequence of soil types along the hill from the top to the valley. (5mks)

(ii) Soil cation exchange capacity is the measure of the number of absorption sites per unit weight of soil at a particular pH while cation exchange is the replacement of one cation by another on the exchange of complex. (2mks)

(iii) Contour strip cropping is the growing of crops in alternate strips along the contour (lines joining same height) while contour ploughing is planting (ploughing) across the hills following the contour (lines that join places of same height. (2mks)

(iv) Eluviation is the removal of soil materials from the upper horizon of a soil while illuviation is accumulation of leached colloidal material in deeper soil layers. (2mks)

(v) Hydration refers to addition of water to a given mineral cpd to form weak and new chemical cpds while hydrolysis is when water reacts with mineral cpds to form completely new cpd. (metallic cations are replaced by (H+) from water leading to disintegration of certain minerals. (2mks)

37.a)

1. it should permit free flow of fresh clean water in and out of the pond
2. Mud does not stir up from the floor or walls
3. Provide good contions for efficient food utilization by fish
4. It should be free of pollution. This is essential for good fish health
5. It should be easy to drain and fertilize
6. Well protected from other farm of farm or game animals. This avoids the drowning of animals including man. (6mks)

b)

1. Avoid erosion
2. Stocking of fish pond.
3. Security of fish pond / proper fencing to stop vermin from catching fish
4. Manuring of fish pond.
5. Feeding of fish.
6. Cropping (weeding around the fish pond to avoid it being eaten by fish)
7. Fish harvesting.
8. Water level maintenance.
9. Maintenance of oxygen supply in the pond.
10. Control of predators.