1. C	11. C	21. B
2. D	12. D	22. D
3. B	13. B	23. A
4. A	14. A	24. A
5. D	15. D	25. A
6. B	16. C	26. D
7. C	17. B	27. C
8. C	18. B	28. C
9. C	19. A	29. C
10. A	20. B	30. B

Award 1 mark for 30 objects
1 x 30 = 30 marks.

31 (a) **Fish sampling** – Refers to the removal of fish from the pond to assess their growth and health status after which they are returned in the pond, cage or tank.

Award 2 marks for correct definition.

(b) Causes of fish mortality in a fish pond

- ✓ oxygen depression
- ✓ Low water PH
- ✓ Stressful condition during transportation of fingerlings.
- ✓ Bacterial / parasitic infection
- ✓ Sewage that pollute the pond
- ✓ Pond poisoning from nitrate or ammonia
- ✓ Wounds from territorial fight / predatory birds.
- ✓ Temperature shock to fingerlings during introduction at the cultural units.

Award 1 mark for 4 points

1 x 4 = 4 marks

(c) Factors that affect the stocking rate of fish in a fish pond.

- ✓ Size of the pond
- ✓ Pests and diseases
- ✓ Amount of natural and supplementary feeds.
- ✓ The rate of reproduction e.g. low stocking rate is recommended with species which multiply fast.
- ✓ Fish species i.e. some fish species require more space because of their behavior.
- ✓ Fertility of the pond and its ability to provide natural food supply.
- ✓ Size and weight of fish, larger fish require relatively more space than small fish of the same species.
- ✓ Level of management of the pond such as fertilizer application, supplementary feeding

Award 1 mark for 4 points

1 x 4 = 4 marks

32. (a) **Economical efficiency** is a type of efficiency where costs of production are weighed against the return obtained.

While

Technical efficiency is the measure of physical output per unit of input.

Award 2 marks for 1 correct difference

2 x 1 = 2 marks.

(b) Roles of price in agricultural production

- ✓ It influences the method of production used. i.e better prices encourage use of bette methods of production.
- ✓ Determines the distribution of income and wealth in the country.

- ✓ Influences the level of output on the farm. i.e. the higher the price, the better the output.
- ✓ It enables full exploitation of resources and gives freedom of choice among producers and consumers.
- ✓ It stimulates production because farmers will always aim at maximizing profits.
- ✓ It controls consumption levels of farm products through forces of demand and supply.
- ✓ It rewards and promotes efficiency of workers through correct allocation of duties.
- ✓ It indicates to the farmer what to produce.

Award 1 mark for 4 points

1 x 4 = 4 marks

(c) Factors that influence price of a commodity.

- ✓ **Quality of the produce:** poor quality products have low prices as it can not compete with the quality produces.
- ✓ **Cost of production;** High cost of inputs e.g seeds, fertilizers makes the final price of the produce to be higher and vice versa.
- ✓ **Change in demand;** As demand increases, prices are expected to increase where as a decrease in demand results in a decrease in price.
- ✓ **Change in supply;** As supply decreases, price increases and as supply increases, the price of a commodity decreases.
- ✓ Change in government policy on taxation i.e. high taxes increases prices while law tax decrease prices.
- ✓ **Marketing costs;** the higher the marketing costs, the higher the price and vice versa.
- ✓ **Season,** During certain seasons, prices of commodity, increase e.g. price for chicken is always high during festive seasons.

Award 1 mark for 4 points.

1 x 4 = 4 marks

33 (a) Uses of phosphorous in plant nutrition

- ✓ It is necessary in the formation of fruits and seeds.
- ✓ Encourages formation and development of roots
- ✓ It is needed in cell division

- ✓ It helps in nitrogen break down during respiration.
- ✓ Increases resistance to certain diseases in crops.
- ✓ It is important in the production of fats and proteins.
- ✓ Improves on the quality of crops e.g. vegetable crops.

Award 1 mark for 5 points

1 x 5 = 5 marks

(b) Conditions that may lead to soil PH being acidic

- ✓ Leaching of bases which are later replaced by hydrogen ions.
- ✓ Uptake of bases by plants.
- ✓ Addition of acidic fertilizers e.g. sulphate of ammonia.
- ✓ Presence of acidic organic matter that produces humic acides.
- ✓ Presence of acidic soluble salts which may arise from fertilizers, weathering of mi
- ✓ Water logging and poor drainage increases hydrogen ion content thus acidity.
- ✓ Acidification due to rain water combining with carbondioxide
- ✓ Biological activities in the soil produces carbondioxide which react with water to carbonic acid.
- ✓ The soil may have been formed from acidic parent material e.g. granite.

Award 1 mark for 5 points

1 x 5 = 5 marks

34. (a) (i) **Velocity ratio;** Is the ratio of distance moved by effort to the distance move load in the same time interval.

Award 1 mark for 1 correct definition

1 x 1 = 1 mark

(ii) **Work output;** Is the work done by a machine when it moves the load thr certain distance.

Ward 1 mark for 1 correct definition

(iii) **Work input;** Is the work done by the machine when the effort applied moves the load to a certain distance.

1 x 1 = 1 mark

(iv) **Energy wasted;** Is the difference between work in put and work output.

1 x 1 = 1 mark

(b) (i) Work in put = Effort x Effort distance

100 x 80

= 800J

Award 2 marks

1 mark for formula

1 mark for correct answer

(ii) Work output = Load x Load distance

150 x 20

3000J

Award 2 marks

1 mark for formula

1 mark for correct answer

(iii) Energy wasted = work input – work output

8000 – 3000

5000J

Award 2 marks

1 mark for formula

1 mark for correct answer

35 (a) (i) Strainer post: To take up the strain of the wires pulling in one direction only

(Award 1 mark for 1 point: 1x1 = 1 mark)

(ii) Ordinary post: Hold wires up between the corner posts or to reduce on the strain exerted or king post.

(iii) Droppers: Prevent sagging of wires or hold wires in one position and prevent them from being pushed apart.

(b) Difference between high tensile barbed wire and low tensile barbed wire

High tensile wire	Low tensile wire
Has very sharp small barbs	Barbs are not very sharp
It is supplied in rolls of 600m	Supplied in rolls of 200m
They do not easily break due to high tensile strength	They break easily due to low tensile strength
They do not easily rust	They rust easily

Award 1 mark for 4 correct differences: 1x4= 4marks

(c) Maintenance practices carried out on a barbed wire fence

- Broken wires should be repaired / replaced as soon as possible.
- Broken or rotten posts which are no longer capable of supporting wires as required should be replaced.
- Loose wires that are sagging should be stretched to the right tension to prevent escape of animals and entry of thieves into the farm.
- Broken gates should be replaced as soon as possible to prevent animals from escaping.
- Bushes that grow in fence line should be slashed to prevent vermin and parasites from hiding and breeding from there.

(Award 1 mark for 3 points: 1 x 3 = 3 marks)

36 (a) (i) Feeding standards: Is a table showing the daily nutrient requirement of an animal for one or more feed nutrients.

(Award 2 marks)

(ii) Safety factor: Is the practice of giving more feeds above the amount specified in the feedin standard or making of allowance of feeds when formulating rations.

(Award 2 marks)

(iii) Starch equivalent: Is the amount of pure starch that can provide the same energy value as 100kg of feeds.

(Award 2 marks)

(b) Reasons for inclusion of safety factor in a ration

- To cater for deficiency of some nutrients in a feed.
- To cater for changes and responsiveness of some feeds.
- To cater for variations in the nutrient composition of feeds.
- To cater for losses during mixing or processing.
- To cater for animals that are above average.
- Some feeds may not be uniformly mixed.

(Award 1 mark for 4 points: 1 x 4 = 4 marks)

37 (a) **Herbicide selectivity:** Refers to the capacity of a herbicide to be able to kill a given species of weeds and not another plant.

(Award 2 marks for 1 point: 2 x 1 = 2 marks)

(b) Factors that contribute to selectivity of herbicides

- Method of application whereby high selectivity is attained by placing the herbicide where the weed is and away from the crop.
- Plant morphology and anatomy e.g. leaf angle, nature of leaf surface.
- Stage of growth of the plant: Young plants are more susceptible to herbicides action because of their high growth activity.
- Herbicide characteristics: Herbicides which interfere with photosynthesis are non-selective.
- Concentration: High concentration of herbicides can kill all kinds of plants.

(Award 1 mark for 4 points: 1 x 4 = 4 marks)

(c) Advantages of using herbicides to control weeds

- Labour required for weed control is greatly minimized.
- Herbicides eliminate the drudgery of hand weeding.
- Convenient where topography hinders mechanical cultivation.
- Convenient where crop morphology makes hand weeding unpleasant e.g. in sisal.
- Time saving since a large area of land can be effectively covered in a short time.
- Herbicides do not disturb the soil structure.
- Herbicides can be used to control weeds in closely spaced crops like sorghum where mechanical means would be difficult.
- Herbicides are highly effective as total killers.

(Award 1 mark for 4 points: 1 x 4 = 4 marks)

END