WAKISSHA JOINT MOCK EXAMINATIONS
MARKING GUIDE
Uganda Advanced Certificate of Education
PRINCIPLES AND PRACTICES OF AGRICULTURE P515/1

SECTION A (30 MARKS)

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

SECTION B (70 MARKS)

31. (a) ***Define the term hormone***
Regulatory substance produced in organisms to stimulate specific tissues or cells into action (Award 2mks)

(b) ***The table below shows hormones involved in the oestrous cycle of a cow. Study the table below and then fill in the missing information (04mks)***

Site of production	Hormone Secreted	Effect of the hormone on the cycle
Uterus	Oestrogen e ($^1/_2$)	Onset of heat e ($^1/_2$)
Anterior Pituitary e($^1/_2$)	FSH ($^1/_2$)	*Development of follicles*
Corpus luteum	($^1/_2$) Progesterone	Hinders heat, maintains pregnancy e($^1/_2$)
Anterior Pituitary e($^1/_2$)	LH e ($^1/_2$)	*Ovulation*

- The **LH** will cause rapid growth of the follicle and leads to **ovulation** leaving corpus luteum
- **Corpus luteum** produces **progesterone.**
- **Progesterone** maintains the proliferated state of the uterus and inhibits production of **LH** and **FSH** ensuring that there is no more oestrus.

(d) ***Outline four signs exhibited by a cow at standing heat*** (02mks=½ @ point)

- The cow allows other cattle to mount her,
- The cow mounts others,
- Continuous mooing / bellowing,
- Reduction in milk yield in lactating cows,
- Loss of appetite,
- Frequent urination,
- Restlessness
- Slight rise in body temperature,
- Swelling / inflammation of the vulva,
- Clear mucus is seen on the vulva,

32. (a) ***Explain the following as used in the nutrition of farm animals.***

(i) Feed additives

These are non-nutritional substances which are added to feeds to improve the performance of the animals. (01mk)

(ii) ***Biological value***

% of N2 absorbed from food and used in the manufacture of body proteins (01mk)

(iii) ***Production from grass alone***

Amount of milk that can be obtained from a cow without concentrates (01mk)

(b) ***Mention any three advantages of feeding livestock on roughages***

(03marks=1mak@)

- They provide the bulk necessary and satisfy appetite,
- They aid peristalsis,
- Essential for the efficient working of the alimentary canal,
- They hold water which helps in keeping the feacal mass moist
- They prevent constipation.

(c) ***Give four advantages cattle have over pigs as far as digestion is concerned?***

(04mks=1mk@)

- Cattle are able to utilise cellulose found in grass
- Cattle can convert NPN into amino acids
- Cattle have the ability to manufacture essential vitamins
- Cattle a nitrogen saving mechanism

33. (a) ***Differentiate between increasing returns and diminishing returns in a production function*** (02mks block)

In increasing returns, each additional input leads to a bigger increase in output, while in diminishing returns the output gets smaller and smaller for each additional input.

(b) ***Outline four factors that influence the level of capital investment in a farm business***

(04mks=1mk @ point)

- Profitability of the business
- Government policy e.g taxation
- Labour availability
- Market availability
- Capital availability
- Land availability

(c) ***Identify four short comings in the implementation of the current parish development model in Uganda*** (04mks=1mk @ point)

- Inadequate funds for parishes with high population
- High administration costs
- Lack of a common interest of investment for the funds
- Illiteracy of the farmers in the farming groups
- Political interference
- High risks and uncertainties relating to farming

34. (a) ***Explain four ways how timely planting increases crop yields*** (04mks=1mk @)

- It enables crops to get all the season's rain
- Crops get access to a rich N_2 supply (NO_3) due to Nitrogen flush during the rains.
- It reduces the incidence of pests and disease attack
- The farmer has enough time to give the necessary attention to the crops
- Crops mature at the most appropriate time for safe harvesting.

(b) ***Explain three signs exhibited by late planted crops*** (03mks=1mk@)

- Stunted growth
- Thin leaves
- Partial wilting
- Weakened stems

(c) ***Suggest three remedial practices a farmer can undertake to save late planted crops from further deterioration***

(03mks=1mk@)

- Irrigation
- Fertilizer application

- Pruning
- Thinning
- Pest control

35. (a) ***What is meant by field efficiency of an implement?***
- Ability of an implement to perform as expected while in the field (01mk)

(b) ***Field efficiency of most implements is not 100%, give three reasons***
(03mks = 1mk@)
- Unfavourable soil conditions
- Unfavourable weather conditions
- Unfavourable terrain
- Poor servicing of machinery
- Unskilled machine operators
- Use of machines not adapted to the environment
- Use of machines on jobs they are not meant to do

(c) ***Suggest three ways a farmer would increase the field efficiency of farm machinery***
(03marks=1mk@)
- Operate the machine during favourable soil and climate conditions
- Operate the machine in favourable terrain
- Proper servicing of machinery
- Use skilled machine operators
- Use of machines that are adapted to the local environment
- Use of machines on jobs they are meant to do

(e) ***A 3x30cm plough is moving at a speed of 4kmh^{-1}. Calculate how much time it takes to plough a 500mx500m field when the field efficiency is 70%.***
(03mks1mk@step)

Width of the plough----------3x30=90cm=0.9m
Effective field capacity----------0.9x4x70/100=0.25ha/h or 2500m^2/h
Time required----------500x500/2500=100hrs

36. (a) ***Outline two regulations governing public and livestock health in Uganda***
(02mks=1mk@ for 2 pts)
- Animals should not be left to loiter in public
- Don't eat uninspected meat or animal products
- Report all suspicious sick animals to the authorities
- Avoid eating products from dead stock
- Sick animals should be promptly treated
- Use protective gear while treating livestock
- Maintain proper hygiene in animal quarters
- Ensure safe disposal of empty drug containers

(b) ***Identify two relationships existing between public health and animal health act***

(02mks=1mk@for2pts)

- Both are to ensure public safety of the two parties
- Both operate under a legal frame work

(c) ***Give three reasons in support of the inclusion of public health concerns in livestock management programs***

(03mks=1mk@ for 3pts)

- To ensure sustainable agricultural production
- To protect the agricultural resources
- To obtain a sustainable agro-ecological environment
- To protect the market of agricultural products
- To ensure safety of the consumers of the agricultural products

(d) Outline **three** signs of environmental degradation as a result of urban livestock farming

(03mks=1mk@for 3pts)

- Increase in carbon emissions
- Acid rain
- Smelly air
- Increase in human parasites
- Presence of polluted water
- Traces of heavy metal in crop products

37. ***An experiment was set up to investigate the effect of soil PH on the abundance of bacteria and fungi in percentage in a soil sample.***

Soil Ph	4.0	6.0	7.4	9.5	10.4	12.5	13.4	14.0
Bacteria	20	30	45	50	60	58	50	18
Fungi	60	50	40	30	20	18	15	10

(a) ***Describe how the abundance of the two organisms vary with soil pH***

Bacteria population increase with increase in soil pH up to 10.4(1mk), beyond which it declines (1mk), whereas the fungi population decreases with increase in soil pH(1mk)

(Total mks 03)

(b) ***What two conclusions can you draw from the data?***

- Bacterial existence is not favoured by extreme pH (1mk)
- Fungal existence is not favoured by high pH and vice versa (1mk)
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(c) ***Give two ways how the above micro organisms affect crop growth***

(02mks=1mk@for 2 pts

- Help in organic matter decomposition to release nutrients
- Fix nitrogen in the soil to increase N_2 levels in the soil
- Cause diseases to crops retarding their growth

- Influence soil pH affecting mineral absorption by plants
- Manufacture anti-biotics which control harmful organisms

(d) Explain **three** other factors that may affect the abundance of soil microbes.
(03mks=1mk@3pts)

- Soil temperature
- Soil moisture level
- Soil texture & structure
- Soil pH
- Relative presence of other organisms
- Soil organic matter level
- Soil air

END