PREPARATORY EXAMINATION

2010

MEMORANDUM

SUBJECT:	**AGRICULTURAL SCIENCES P1 (10641)**

MEMORANDUM

SECTION A

QUESTION 1.1

1.1.1	A	B	~~C~~	D
1.1.2	~~A~~	B	C	D
1.1.3	A	~~B~~	C	D
1.1.4	~~A~~	B	C	D
1.1.5	A	B	C	~~D~~
1.1.6	A	B	~~C~~	D
1.1.7	~~A~~	B	C	D
1.1.8	A	~~B~~	C	D
1.1.9	A	B	~~C~~	D
1.1.10	A	B	~~C~~	D

(10x2) (20)

QUESTION 1.2

	Only A	Only B	A and B	None
1.2.1	✓✓			
1.2.2		✓✓		
1.2.3				✓✓
1.2.4	✓✓			
1.2.5			✓✓	

(5x2) (10)

QUESTION 1.3

1.3.1 Ovulation✓✓

1.3.2 Dry period✓✓

1.3.3 Islets of Langerhans✓✓

1.3.4 Rotational grazing✓✓

1.3.5 Vaccination✓✓

(5x2) (10)

QUESTION 1.4

1.4.1 Animals✓

1.4.2 Dehorning✓

1.4.3 Synchronisation✓

1.4.4 Caeca✓

1.4.5 Weaners✓

(5x1) (5)

TOTAL SECTION A: 45

SECTION B

QUESTION 2

2.1.1 ruminant/ sheep/ cow/ goat > has Complex stomach✓/ compound 4 stomach
> Chews the cud/ regurgitate✓ **(any TWO)** (3)

2.1.2 Number 4✓ > leaf structure✓/ book page (2)

2.1.3 Papillae. ✓ (1)

2.1.4 1 - oesophagus✓
4 - omasum✓
5 - duodenum✓
8 - pyloric Sphincter✓ (4)

2.1.5 Number 7✓ (1)

2.1.6 - Reticulo – rumen is involved✓
- Cellulose consists of Beta-glucose building blocks and cannot be hydrolysed by the enzyme amylase. ✓
- Cellulytic bacteria in reticulo-rumen secrete the enzyme cellulase which can hydrolise cellulose into:

  acetic acid, pronoinic acid, butyric acid} volatile✓ fatty acids
  carbon dioxide and methane} gases
- Acetic acid increases the butter fat percentage milk
- Volatile fatty acids are directly absorbed by blood✓ in walls of the rumen reticulum and omasum.
- fatty acids serve as source of energy✓ **(Any FIVE)** (5)

2.2.1 A – calf with rickets✓ > Give feeds that contain calcium/ vitamin D✓
B – ration deficiency✓ in phosphorus > Give feeds that ✓contain phosphorus. (4)

2.2.2 Growth and repair✓
Regulation of body activities✓
Structural components of the cell wall✓
Production of milk, wool, meat and eggs. ✓
Reserve energy source✓
Reproduction✓
Body support, movement and protection. ✓ **(Any TWO)** (2)

2.2.3 Composition of the feed✓
Composition of the ration✓
Preparation of feed✓
Quality of food consumed✓
Type of animal✓
Age of plant✓
Individuality. ✓ **(Any TWO)** (2)

2.3.1 $80 - 20 = 60$✓

$$NR = 1: \frac{\%DNN}{\%DP}$$

$$= 1: \frac{60}{20}$$✓

$= 1: 3$✓ (3)

2.3.2 Narrow✓ (1)

2.3.3 Nutritive ratio is less than 1:6✓ (1)

2.4 Roughages and Concentrates

2.4.1 Roughages are feeds that contains less digestible nutrients and are bulky✓✓ while (2)
Concentrates are feeds that contains large digestible nutrients. ✓✓ (2)

2.5 feeding a lick✓
adding soluble salts to the✓ drinking water
Mix concentrates e.g. for fowls and pigs. ✓
By dosing✓
By injection✓
Cafeteria – style✓ **(Any TWO)** (2)
[35]

QUESTION 3

ANIMAL PRODUCTION

3.1.1 Lobola and subsistence farming

3.1.1.1 Traditional African custom in which a man pays a price, in the form of cattle, to the father of his bride to be to compensate him for the expense of raising her✓✓ (focus; 2007) (2)

3.1.1.2 Farming in which the produce is consumed by the household with little or no surplus for selling. ✓✓ (adapted from focus; 2007) (2)

3.2.1 Extensive production > system where animals use a large and need to obtain feed on their own with little supplement, production system is lower compared to intensive system but less costly. ✓✓ (2)

3.2.2 Intensive production > a system where a large number of animals are kept in a small area to ensure maximum production, movement restricted and feed is supplied. ✓✓ (2)

3.3 Lucerne – hay

3.3.1 Energy > good for horses need to be supplemented ✓with mealie meal (1)

3.3.2 Production > extremely suitable, particularly✓ with ruminants. (1)

3.3.3 Growth > Lucerne-hay is suitable✓ (1)

3.3.4 Fattening > not good, needs to be supplemented✓ with maize. (1)

3.4 Types of equipments

- strong rope✓
- head clamp✓
- nose pliers✓
- prodder✓
- strong pen✓
- whip and a strong truck✓ **(Any FIVE)** (5)

3.5 Factors influencing behaviour of animals

- Physiological state✓
- Health status✓
- The type of an animal✓
- The tameness✓
- The breed✓
- The calmness of the handler✓
- The facilities and equipment used✓
- Environment✓ **(Any THREE)** (3)

3.6 Requirements of movement or transport of animals

3.6.1 > Provision of drinking water✓
> Cool and shading of animals✓
> Enough air flow✓
> Enough space for animals / no overloading✓
> Big and strong vehicles✓
> Enough protection✓
> Correct documentation✓
> Animals of the same sex✓ **(Any FOUR)** (4)

NB: (Other requirements from other textbooks as proof are accepted)

3.7 Types of feeds and ages

3.7.1 Chick mash (C) ✓
3.7.2 Grower mash (D) ✓
3.7.3 Developer mash (B) ✓
3.7.4 Layer mash (A) ✓ (4)

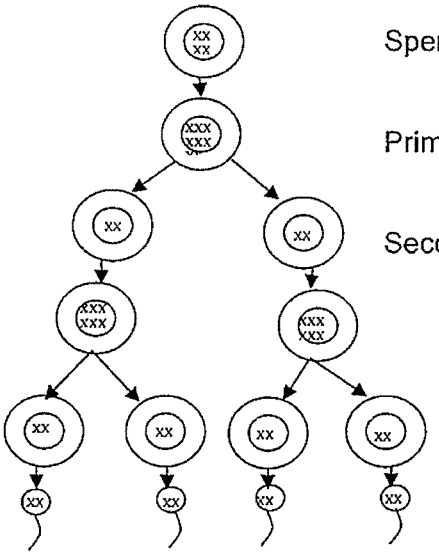
3.8 Natural protection of animals
- Animals usually seek shelter for themselves. ✓
- When it is hot, ✓ they find shade under trees✓
- When cold winds✓ blow, they will stand on the sides of hill or anything that can protect them from the winds. ✓ (5)

3.9 Development of new breeds✓
Greater production e.g. wool, milk✓, beef
Faster growth rates✓
Greater resistance to diseases✓
Greater fertility✓
Better adaptation✓
Utilize food better✓
Possess better motherly instincts✓ **(Any TWO)** (2)
[35]

QUESTION 4

4.1.1 Spermatogenesis
Is the formation of sperms✓✓ (2)

4.1.2 Diagram showing the process of spermatogenesis



(5)

4.2.1 Artificial insemination✓ (1)

4.2.2 - Cow brought into shelter be calm and comfortable✓
- Apparutus must be clean✓
- Remove faeces around vulva thoroughly✓
- Fixes the cervix by inserting hand in rectum✓ (4)

4.2.3 Rapid genetic improvement✓
- Venereal diseases can be controlled✓
- Less expensive✓
- Greater flexibility in the breeding programme✓
- Occurs where natural mating is not possible✓
- Semen can still be used after death✓ **(Any TWO)** (2)

4.3.1 Zygote (8 cell) - C✓ (1)

4.3.2 Blastocoel – A✓ (1)

4.3.3 Morula – B✓ (1)

4.4 A cattle✓ (i) Drop in milk production, ✓ infected milk
B Brucellosis✓ (ii) Miscarriage, infertility, ✓ swollen joint
(iii) All animals, mainly horses. ✓ (5)

4.5.1
- dull, rough coat✓
- dull, glassy eyes✓
- high body temperature✓
- rapid pulse rate✓
- discharge from nose or eyes✓
- lowered production✓
- urine may be discoloured and faeces may be too hard or too soft. ✓
- animal walks slowly or limps when forced to walk✓
- animal stands alone with its head down, appears miserable. ✓
- labour breathing, sneezes and makes coughing sound. ✓ **(Any THREE)** (3)

4.5.2
- Coat is smooth and shiny✓
- normal production✓
- animals walk normally✓
- eats well✓
- pulse rate is normal✓
- normal body temperature✓
- animal is alert and lively✓
- urine and faeces appear normally✓
- breathes easily and quietly✓
- bright eyes with pink membrane around eyes. ✓ **(Any THREE)** (3)

4.6 Protection of animals from harsh environment / conditions.

4.6.1
- Sheds must be ventilated. ✓
- availability of fresh water in cement trough✓
- shade provided by roofed shelters✓
- plant trees to ensure shade all the times✓ (4)

4.7
- Roundworms✓
- Wire worm✓
- Nodular worm✓
- Brown stomach worm✓ **(Any THREE)** (3)

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TOTAL SECTION B: 105
SECTION A: 45

GRAND TOTAL: 150