



BOTSWANA
EXAMINATIONS
COUNCIL

ANIMAL PRODUCTION

2022



ANIMAL PRODUCTION PAPER 1 (1255/01)

General Comments

This is the first group of the newly introduced Outcome Based Education curriculum. It seems the candidates enrolled for this syllabus were of a low ability. The performance of the candidates hardly met expectations as they failed to access high order questions. Coupled with a low enrolment for the syllabus it was very difficult to fairly assess the effectiveness of the syllabus. The score distribution of the candidates can be summarized as follows; out of a total mark of 100, the scores were ranging between 24 to 63 marks. Mostly the candidates were scoring between 31 to 40 marks. The quality of work presented by the candidates was not impressive as evidenced by the presentation of their work. There was a logical presentation of responses by most candidates, and they were able to observe rubrics of the questions. Most of the work presented by candidates was neat, for example, Question 1 (c) (iii) on preparation of a profit and loss account for the dairy business, Question 3 (c) (iii) on drawing the line graphs. Most of the work presented by candidates on the ability to do mathematical computations was poorly done, for example, Question 1 (a) (iii) on calculation of the average mortality for 5-week rearing period, Question 2 (a) (iii) on determining the amount of pellet feed needed to feed the goat for 60 days and 2 (c) (iii) on calculation of the stocking rate of the ranch.

Comments on Individual Items

Question 1

- (a)
- i. The responses given by most candidates were not correct hence the question was poorly done. Most candidates gave responses like feedlot, brooder, range management etc. Instead of response such as: crush or kraal or spray race or dip tank.
 - ii. The responses were poor, and most candidates gave responses such as intensive system needs/requires small area whereas extensive system needs open/unfenced area instead of describing a matching feature for both systems e.g., Intensive system needs/requires small area whereas extensive system needs/requires large area; it is easy to control diseases / breeding / feeding in intensive system and difficult to control diseases / breeding/ feeding in extensive system.
 - iii. The responses were poor, and most candidates gave responses such as $5+7+3 = 15$ that is number of dead chickens in 5-week rearing period instead of the average number of dead chickens in 5-week rearing period e.g., $5+7+3 = 15$; $= 15/5 = 3$;
- (b)
- i. Most candidates answered the question well though some gave responses such as to know the activities that are taking place in the farm, for forward running of the business



etc. instead of giving responses such as identifying the strengths / weakness of the business, assist in making essential business decisions etc.

- ii. Most Candidates were able to partially answer the question hence accessing 1 mark by giving responses such as for effective decision-making instead of giving responses such as provides data on costs; for effective decision making; provides data on income/farm income; for assessing profit / viability of farm business.
- iii. Most Candidates fairly answered the question though some tried to balance the entries between production and financial instead of giving responses such as

production	financial
number of pigs sold; amount of feed bought; number of workers paid;	amount received from sale of pork;

- (c)
 - i. Most candidates well answered the question though some were broad when giving uses for leather such as to make clothes instead of giving responses such as making belts, bags, shoes etc.
 - ii. Most candidates well answered the question though some were giving responses such as provide superb customers service, provide livestock with more food and water instead of giving responses such as produce milk near market, use refrigerated vehicles, use reliable transport etc.
 - iii. Most candidates well answered the question though some failed to give correct totals for costs and income. The expected responses were as follow:

costs		income	
Item	amount (P)	item	amount (P)
10 bags of feed	3500	culls sold	9500
labour	2000	sale of fresh milk	8500
medicines and vaccines	500		
Total	6000	Total	18000

profit / loss = 12000/profit;



Question 2

- (a)
- i. Most candidates were able to state an example of a livestock feed stuff that contains a high amount of fibre such as roughage, hay, silage etc. though some gave responses such as molasses, lick , fish meal etc.
 - ii. Most candidates gave correct response such as type of livestock feed- roughage ; reason - reduce feeding cost; aids digestion/reduces constipation; high in fat soluble vitamins and few confused type of livestock feed with example of a livestock feed gave responses such as silage for type of livestock feed.

- iii. Most candidates gave correct response of

$$0.7 \times 60 / \frac{1}{60} : \frac{0.7}{x}$$

42;

- (b)
- i. Most candidates failed to give the correct name of a grazing system gave responses such as rotational grazing, zero grazing etc. and the response expected from candidates was creep grazing;
 - ii. Most candidates failed to give the correct benefits of controlled burning on the range, gave response such as boosts the fertility of the soil and the response expected from candidates were as follows promotes seed germination / breaks seed dormancy, reduces veld fires, reduces/kills/destroy invaders/ unwanted vegetation etc.
 - iii. Most candidates correctly identified grass species that can be classified as increaser and decreaser, **but** failed to give correct reasons for the answers and gave responses such as increaser - grass **X**; reason - the height of grass is increasing; decreaser - grass **W**; reason - decreasers decrease with the grazing pressure; and the responses expected from candidates were as follows increaser - grass **X**; reason - the population increases as grazing pressure increases; decreaser - grass **W**; reason - population decreases as grazing pressure increases;
- (c)
- i. Most candidates correctly named one digestive enzyme found in the abomasum that is pepsin **but** failed to identify renin another one, though some totally gave incorrect responses such as amylase, gastric juice, peptides etc.
 - ii. Most candidates failed to correctly identify parts of the digestive system of a ruminant responsible of separation of foreign objects and physical digestion and the responses



expected from candidates were separation of foreign objects – C; physical digestion – B;

- iii. The responses were poor, and most candidates failed to convert number of livestock in a 60ha into livestock units (i.e. LSU) and the responses expected from candidates were as follows;

$$10 + 1 + 2 = 13 \text{ LSU};$$

$$\frac{60}{13};$$

$$4.6/4.6 \text{ ha / LSU};$$

Conclusion - Overstocked;

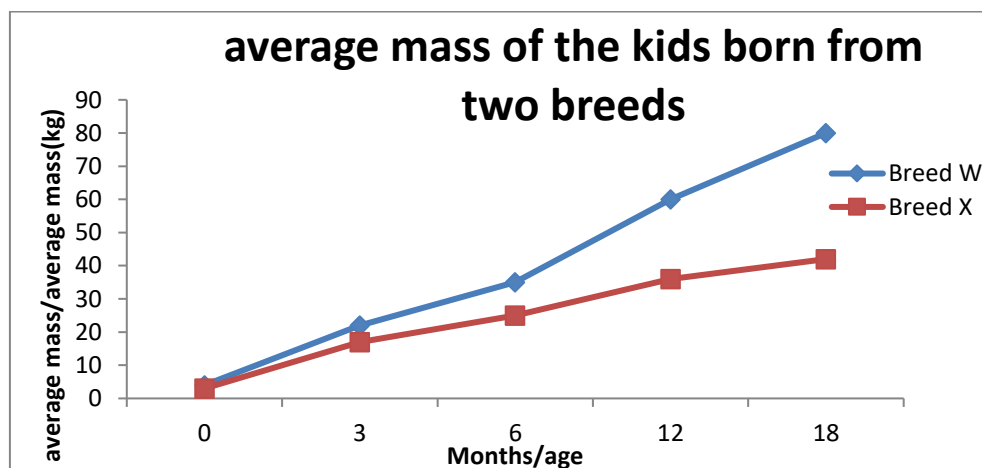
Question 3

- (a)
- i. Most candidates gave correct response such as contains/releases/produce ova; secretes oestrogen / progesterone, though some gave incorrect responses such as release of ovules or egg instead of egg cell.
 - ii. Most candidates gave correct responses such as vulva – becomes reddish / pink / swollen; vagina – secretes slimy discharge/mucus; though some gave incorrect responses such as vulva – increase in size; vagina – cow will urinate very frequently.
 - iii. Most candidates accessed 1 mark by correctly giving response such as provide them with feed rich in calcium and other responses expected from candidates were avoid stressing chickens; culling the hens; addition of grit
- (b)
- i. Most candidates gave correct response such as gestation/pregnancy; though some gave incorrect responses such as parturition, implantation etc.
 - ii. Most candidates gave characteristics of inbreeding instead of significance of inbreeding in livestock improvement and responses expected from candidates were involves mating closely related individuals; to maintain / concentrate desirable traits / purify strains / expose harmful recessive genes;
 - iii. The candidates' responses were poor as most candidates failed to differentiate offspring Y from offspring W genotypically and phenotypically and the responses expected from candidates were contains 75% of Tuli bull genes/ more genes of Tuli bull; looks more like/ similar to Tuli bull;
 - iv. The responses were also poor as most candidates gave general characteristics to look for in a good bull **instead** of factors considered when selecting a bull to use in F1 generation as per illustration of upgrading process in fig.3.1. and the responses



expected from candidates were maintain same breed / use Tuli bull; use a bull not related to the parent;

- (c)
- Most candidates gave correct responses such as oestrogen – mating/copulation; progesterone – pregnancy / gestation; though some gave incorrect responses such as progesterone – ovulation / fertilisation.
 - The candidate's responses were poor as most candidates focused on the health and safety of inseminator instead of the cow gave responses such as wear protective clothing and the responses expected from candidates were wash hands; wear gloves; sterilize equipment; restrain the cow etc
 - Most candidates failed to correctly state the title of the graph as well as labelling of the X and Y axis and the responses expected from candidates were as follows;



Question 4

- (a)
- Most candidates gave correct responses such as ticks/ lice/ mites/ fleas/flies though some gave incorrect responses such as liver fluke.
 - Most candidates gave correct responses such as use of acaricides/ spraying/ dipping; rotational grazing; hand picking; burning infested pasture/ range.
 - Most candidates gave correct responses such as practice rotational grazing; use of anthelmintic/Dose/Deworm; burning infested pasture; vaccination.
- (b)
- Most candidates gave correct responses such as foot and mouth disease/ Newcastle/ rabies /swine fever.



- ii. Most candidates failed to clearly indicate that the reasons given are for either vaccination or isolation and the responses expected from candidates were as follows; vaccination – boost immune system/ reduce spread of disease; isolation – reduces spread of the disease/separate healthy animals from sick animals;
- iii. Most candidates were not able to fully explain steps the farmer can take to bring the parasite under control gave responses such as destock instead of destock the paddock/affected paddock; dipping / spraying instead of immediate dipping / spraying of animals from the paddock; isolate/ quarantine instead of isolate/ quarantine animals infested with parasites; and the responses expected from candidates were as follows;

step	justification
destock the paddock;	to break the lifecycle of the parasite
controlled burning in the paddock;	to kill the parasite;

- (c) i. Most candidates gave correct responses such as cleaning / disinfecting; proper disposal of waste / infected carcasses; provide foot bath; prevent visitors entry to livestock;
- ii. Most candidates gave correct responses such as identify animals with abnormal temperature / rise in body temperature; lack of appetite; loss of weight though some gave incorrect responses such as find out which animals are sick, do clinical examination etc.
- iii. Most candidates were not able to fully explain how a proposed safety precaution ensures that disease is not introduced into a country gave responses such as quarantine/isolation – to prevent/avoid diseases and the responses expected from candidates were as follows;

proposal	justification
quarantine;	identify animal with the disease /limit transmission of disease;
restrict movement of animals / animal products;	limit transmission of pathogens;
Provide footbath;	Reduce transmission of pathogens /diseases;

Question 5

- (a) i. Most candidates gave correct responses such as source of food; raw materials; employment etc.



- ii. Most candidates gave correct responses such as guinea fowl and ostrich; though some gave incorrect responses such as kudu.
 - iii. Most candidates gave correct responses such as enterprise: gemsbok / kudu; reason: demand for meat is higher than supply; less competition.
- (b)
- i. Most candidates failed to correctly name a zone/geographical location where kudus are predominately found instead gave names of villages and the response expected from candidates was southern zone;
 - ii. Most candidates gave correct responses such as cleaning; processing / drying; refrigeration etc.
 - iii. The candidates responses were poor as most candidates failed to consider the type of animal and vegetation before suggesting game capture method to use and the response expected from candidates were as follows: method: dart guns with game capture drugs. reasons – suitable for dangerous animal / make animal docile; animal in a thick forest; only one animal caught;
- (c)
- i. Most candidates seem to be clueless about the benefits of using ICT when rearing game gave responses such as cannot cause any harm to animals and the responses expected from candidates were; for record keeping; mark animals / identification; animal tracking / traceability; capture large volume of data; ease research/finding of relevant information etc.
 - ii. The candidates responses were poor as most candidates failed to show how issuing of hunting licenses will promote conservative use of game and the responses expected from candidates were; controls number of game killed annually; avoid extinction/depletion of game animals /enables game population to increase / maintained; generate revenue for conservation;
 - iii. Most candidates were not able to fully explain why this practice may benefit the economy and the responses expected from candidates were;

Benefit to the economy	explanation
diversify production / sources of income/ source of foreign exchange / foreign exchange;	as different enterprises are combined;
increase employment opportunities;	due to increased number of enterprises;



increased food production;	as different enterprises contribute towards food production;
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ANIMAL PRODUCTION PAPER 2 (1255/02)

General Comments

This is the first time this paper was written in the country. The candidates performed exceptionally well. The scores obtained by the cohort ranged between 13 and 44 out of 50 marks. Most of the candidates scored above 50%. The quality of work of the cohort met expectations as evidenced by the presentation of their work, whereby most candidates did not have any gaps where questions were left not attempted. There was a logical presentation of responses by most candidates and most candidates were able to observe rubrics. Most of the work presented by candidates was neat. The distribution of the marks was as shown in the table below.

Comments on Individual Items

Question 1

- (a) Most candidates did well in this question. They were able to give the correct names of the specimens on display 1, while the features were fairly done. Some of the candidates stated the names of the animals from which the specimens were obtained which resulted in loss of marks.
- (b) The question was well done by most candidates, almost all candidates were able to classify the specimens according to the animal from which they are found. As such candidates were able to access marks for this question
- (c) This question was fairly done. Most candidates were able to score marks for identifying specimens from which the samples were collected. However, marks were lost for reasons advanced for making conclusions. Most candidates were giving functions of the specimen instead of reasons. For some candidates the reasons given were irrelevant
- (d) The question was poorly answered. Almost all candidates accessed less than half of the marks allocated for the question. Instead of burning /incineration, burying candidates wrote making compost for both waste **M** and waste **N**

Question 2

- (a) This question was well one by majority of the students. Those candidates that did not perform well are those who included expense entry for items meant for layer production such as layers



mash. Some candidates lost marks due to inability to compute the total costs for some of the expense items from the extract.

- (b) This question was fairly done. Candidates lost marks due to mixing inputs for broilers with inputs for layers. Some candidates put costs of inputs under quantity which resulted in loss of marks.



Animal Production Paper 3 (1255/03)

1. 0 General comments

- ✓ 38 candidates set for Animal Production paper 3 (1255/03)
- ✓ ALL scripts were moderated, thus no sampling due to small candidature.
- ✓ In Farm diary, some candidates described activities carried out in Field Practical Training (FPT). These activities were taken as additional information but not marked since they were not part of the farm diary.
- ✓ Farm diary accounted for 15% of this assessment. The lowest and highest marks from the Centre before moderation was 7.05% and 12.3% respectively and after moderation it was 6.9% and 11.4%.
- ✓ Field observations accounted for 25% of this component. The lowest and highest marks from the Centre before moderation was 11.5% and 22.5% respectively and after moderation it was 10% and 19.5%.
- ✓ Field Practical Training contribute 35% of this component. The lowest and highest marks from the Centre before moderation was 18.2% and 31.15% respectively and became 16.45% and 27.3% after moderation.
- ✓ Practical tasks contributed 25% of this component.

2.0 Summary mark sheet

- ✓ The Centre submitted a completed summary mark sheet with columns indicating name of candidate, farm diary mark, field observation mark, field practical training mark, practical task mark, total mark and weighted mark.
- ✓ The marks for each component were presented to 1,2 or 3 decimal place and rounding off was shown on total mark and weighted mark.
- ✓ It is suggested that the summary mark sheet should also have columns for Moderated mark next to each component.

3.0 Organising, Packaging and Binding of scripts

Quotation files were used for binding scripts which were then arranged according to candidate's numbers in ascending order. The scripts were properly packaged in boxes supplied by BEC.

4.0 Individual Scored Tasks Reports

4.1: Farm Diary

4.1.1 Cover page



- ✓ Some candidates did not name the production enterprise hence lost a mark. Most candidates were not specific in naming the production enterprise but were too general to state it as Animal production enterprise. Such candidates were awarded $\frac{1}{2}$ a mark. In future, centres are advised to encourage candidates to be specific in naming the production enterprise.
- ✓ Candidate name, candidate number, centre name, starting and completion date of enterprise was well done by most students.

4.1.2 Enterprise details

- ✓ Most of the candidates did not address this part hence lost all the marks.

4.1.3 Sequence of activities

- ✓ For some candidates, the activities carried out were not in correct order hence loss of marks.
- ✓ Dates were reflected for every activity by most of candidates.

4.1.4 Activities/Operations

- ✓ This part was well done since majority of candidates managed to give a minimum of 10 relevant activities.

4.1.5 Tools used.

- ✓ This part was well done since majority of candidates managed to give appropriate tools and their appropriate use for a minimum of 4 activities.

4.1.6 Importance of activity

- ✓ Majority of candidates got 5 or more marks as they were able to indicate significance of at least 5 to 10 activities.

4.1.7 Relevance of comments

- ✓ Most candidates scored 2 marks since they gave half to more than half (5 to 9) comments or observations on relevant activities. However, some comments /observations were misplaced into the description column though marked correct.



4.1.8 Precautions observed.

- ✓ Most candidates accessed 2 marks out of a maximum of 3 safety precautions.
- ✓ Cleaning of tools used and safe storage of equipment after use was not addressed by **ALL** candidates hence loss of marks.

4.1.9 Project termination

- ✓ Description of how project was ended and observations about project viability were not addressed resulting in **0 mark**.
- ✓ Candidates described how products were disposed off but failed to do likewise on residues. This led to most candidates getting 2 marks out of 4.

4.1.10 Neatness of work

- ✓ Most candidates scored 2 marks on neatness of entire work due to cancellations and overwriting.

4.2. Field Observation

4.2.1 Title of investigation

- ✓ Some candidates lost the 1 mark due to the title missing the factor to be investigated.
- ✓ Few candidates lost 1 mark as their title of investigation lacked the comparison part.
- ✓ Parameter to be measured was omitted by some candidates.
- ✓ Some candidates lost a mark on neatness due to overwriting letters.

4.2.2 List of equipment / materials used for investigation / inputs

- ✓ Out of a list of 11 materials/equipment/inputs, majority of candidates managed to list more than half of them resulting in those candidates getting 3 marks out of 4.

4.2.3 Objectives/ Aims of investigation

- ✓ It was fairly done since the objectives were relevant to tittle, achievable and measurable. However, candidates lost a mark on specificity due to some objectives lacking the comparison and parameter to be measured.



4.2.4 Statement of factor to be investigated.

- ✓ This part was fairly done since about half the candidates managed to state correct factor/problem, possible solutions to factor and at least 1 benefit. However, most candidates lost a mark on possible causes of factor/problem investigated.

4.2.5 Number of units per treatment/manipulation and size of unit/age

- ✓ ALL candidates did not replicate their treatments hence awarded the 1 mark for no replication.
- ✓ ALL candidates did not justify the number of replications or why there was no replication hence lost the 2 marks for this part.
- ✓ Candidates stated age of layers and or number of layers in a cage hence scoring the 1 mark. However, some candidates had cages as their units thus giving size of cages leading to loss of 1 mark.

4.2.6 Layout/Sketch plan of investigation

- ✓ Almost all candidates lost 1 mark on title of sketch. The title was supposed to be either **bolded, italicised** or **underlined**, but candidates failed to meet the requirement.
- ✓ Candidates used key to show treatment and control hence managed to access all the marks.
- ✓ **ALL** candidates lost all the 2 marks as they sketched cages to 2 instead of 3 dimensions. The centre should advise candidates to sketch cages to 3 dimensions showing length, width, and height.
- ✓ The sketch plan and key were clearly labelled by most candidates.
- ✓ Most candidates lost 1 mark on neatness due to overwriting letters.

4.2.7 Analysis of findings / Implications of findings

- ✓ Analysis of results was poorly done as most candidates lost marks. This was due to candidates failing to write the correct formula, wrong computations, wrong answer, and answers missing units.
- ✓ The statistical parameter used for analysing data was average weight of eggs.
- ✓ All candidates presented their findings in a table form hence accessed the 1 mark for relevance of presentation method. Some candidates failed to name the form of data presentation resulting in losing 1 mark.
- ✓ On labelling, most candidates scored 2 marks on scale and Y axis. **The mark for scale was waved for ALL candidates** as they used a table for presenting findings hence no



need for scale. Candidates lost marks on title as it was not bolded, italicised, or underlined and on X axis which lacked the statistical parameter.

- ✓ Overview interpretation of the findings was fairly done by candidates as they showed the trends by discussing the results and had a concluding statement. However, the highest result was not addressed leading to loss of 1 mark.

4.2.8 Conclusion

- ✓ Most candidates re-stated purpose of investigation and provided the solution but failed to address the extent of meeting objectives of the investigation.

4.2.9 Recommendations

- ✓ Majority of candidates lost a mark on suggesting modification of investigation to ensure accurate results. The suggestions given by most candidates was on non-treatment factors.

4.3: Field Practical Training Report (Fpt)

4.3.1 Cover page

- ✓ It was well done. It had candidate name and number, Centre name and number, period when FPT was carried out and name of farm where FPT was conducted. A few candidates omitted some of the requirements hence ended up with 1 instead of 2 marks.

4.3.2 Title page

- ✓ It was well done. The expected details were candidate name and number, Centre name and number, date of report submission and candidate signature. A few candidates omitted some of the requirements hence ended up with 1 instead of 2 marks.

4.3.3 Contents page

- ✓ It was poorly done. Half of the candidates did not have the contents page hence awarded 0 mark. The other half had the contents page which lacked the content "Appendices" hence awarded 1 mark. Some candidates had declaration of originality misplaced as it came before contents page hence lost 1 mark.



4.3.4 Declaration of originality

- ✓ It was well done. The expected details were candidate name and number, Centre name and number, period when FPT was carried out, name of farm where FPT was conducted and declaration that report was true reflection of work done by candidate. A few candidates omitted some of the requirements hence ended up with 1 instead of 2 marks.

4.3.5 Acknowledgement

- ✓ Candidates were to acknowledge a minimum of 4 individuals or organisations and the type of service rendered to get 2 marks. However, some candidates acknowledged less than the requirement number of individuals resulting in 0 mark.

4.3.6 Introduction

- ✓ Candidates did well on name of place of attachment and the justification for its selection.
- ✓ Clarity of learner expectations prior to attachment and benefits from attachment was a challenge to most students resulting in them losing marks.

4.3.7. Description of farm routine schedule

- ✓ This area was fairly done. Candidates did not address some areas such as staff complement of the farm, daily work schedule by farm employees, preparation of products for market and profitability statement hence loss of marks.

4.3.8. Description of activities carried out

- ✓ It out. well done. Candidates managed to describe a minimum of 4 activities together with reasons and tools/materials/equipment used.
- ✓ ALL candidates did not address duration and number of employees hence loss of 1 mark.

4.3.9. Findings / Observations

- ✓ Most candidates lost marks on how the expectations were met, how to close gap on learning experiences not met and how learning experience will be useful to candidates.

4.3.10. Conclusion

- ✓ It was well done as candidates indicated the worth of FPT exercise, lessons learnt and their relevance to farming and how learning experience can be made better.



4.3.11. Recommendations

- ✓ It was well done.

4.3.12. Rating by Training Officer in the Industry (TOI)

- ✓ The Supervisor's appraisal form was used for rating candidates.
- ✓ Majority of candidates scored between 8 and 10 marks.

4.3.13. Overall report quality

- ✓ Majority of candidates showed creativity in presentation of information by having tables, pictures, borders and organograms
- ✓ The ICT skills were also demonstrated in compilation of report by most candidates. This included justification, spacing, symmetry, bolding and punctuations.
- ✓ Some candidates lost 1 mark on clarity of illustrations due to failure to introduce tables and organograms. Also, they lost 2 marks on sequencing due to omitting contents page and misplacing page for declaration of originality.
- ✓ Quality of report binding was well done by ALL candidates as they used the quotation files hence resulted in report being easy to flip, durable and secure.

4.3.14 Appendices

- ✓ It was well done by almost all candidates. The candidates managed to attach the required forms. Very few candidates did not attach the consent form leading to loss of 1 mark.
- ✓ ALL candidates did not have samples of farm records as they were never allowed access to them by the farmers hence waver for the 3 marks.

4.4: Practical Task

- ✓ The centre assessed candidates on 4 modules (1,2,4 and 5) instead of 5. Candidates were not assessed on Modules 3.
- ✓ Module 3 had 2 Learning Outcomes ANPSL 3.1 and ANPSL 3.2 under Performance criteria KSC 3.1.2 and KSC 3.2.2 and KSC 3.2.3 respectively of which candidates could have been assessed on. However, for KSC 3.1.2 and KSC 3.2.2 it was difficult to assess some of the criteria such as quality and selection respectively. As for KSC 3.2.3 the Centre did not have a model of animal to perform Artificial Insemination on.
- ✓ The marking was carried out according to the practical task marking rubric.
- ✓ Computations were correctly done.