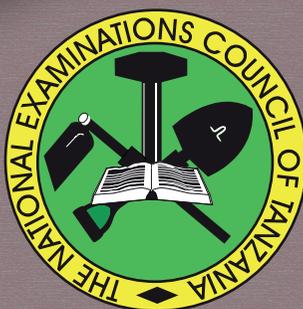


THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



**CANDIDATES' ITEM RESPONSE ANALYSIS
REPORT FOR THE CERTIFICATE OF SECONDARY
EDUCATION EXAMINATION (CSEE) 2018**

034 AGRICULTURAL SCIENCE

THE NATIONAL EXAMINATIONS COUNCIL OF TANZANIA



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034 AGRICULTURAL SCIENCE

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FOREWORD

The Agricultural Science Candidates' Items Response Analysis Report on the Certificate of Secondary Education Examination (CSEE), 2018 has been prepared in order to provide feedback to students, teachers, parents, policy makers and other educational stakeholders on the candidates' performance in this subject.

The Certificate of Secondary Education Examination marks the end of four years of secondary education. It is the summative evaluation which, among other things, shows the effectiveness of the education system in general and education delivery system in particular. Essentially, candidates' responses to the examination questions is a strong indicator of what the education system was able or unable to offer to the students in their four years of secondary education.

The analysis presented in this report shows general average performance of the candidates with some of the candidates performing well and others performing poorly in the examination. The analysis intends to contribute towards understanding of some of the factors that led to such performance. The candidates who did well in the examination showed good mastery in topics examined and adequate field practical exposure, addressed well the requirements of the questions and possessed good command of the English language. In contrary, the candidates with poor performance had inadequate knowledge and field practical experience in different topics. They also demonstrated poor English language proficiency which made them fail to meet the demands of the questions.

The National Examinations Council of Tanzania will highly appreciate comments and suggestions from teachers, students and the public in general that can be used in improving future Candidates' Items Response Analysis Reports.

Finally, the Council would like to thank all the Examinations Officers, Subject Teachers and all others who participated in the preparation of this report.



Dr. Charles E. Msonde
EXECUTIVE SECRETARY

1.0 INTRODUCTION

This report is based on the analysis of candidates' items response in Certificate of Secondary Education Examination in Agricultural Science subject for the year 2018. The Agricultural Science examination was set according to the 2008 examination format which is based on the 1997 Agricultural Science syllabus.

This examination had two papers, namely 034/1 Agricultural Science 1 (theory paper), and 034/2 Agricultural Science 2 (practical paper). The theory paper consisted of three sections A, B and C. Section A consisted of two objective questions, Multiple-Choice Items and Matching Items, each with items (i) to (x). Candidates were required to answer all the questions in this section. The section carried 20 marks (10 marks for each question). Section B comprised of eight short answer questions. Candidates were required to answer all the questions in this section. The section carried 60 marks. Section C had three essay type questions. Candidates were required to answer only one question. This section carried 20 marks. The practical paper consisted of three short answer questions. The candidates were required to answer two questions. Each question carried 25 marks.

This year's results registers average performance by the candidates in which of the total 8,037 candidates who sat for the subject examination, 4,255 (52.94%) candidates passed and 3,782 (47.06%) candidates failed the examination. This accounts for an increase of 14.13 percent pass compared to the year 2017 results. The following table shows the performance of the candidates by grades:

Candidates' Performance in Grades in CSEE 2018

Grades	A	B	C	D	F	Total
Boys	1	9	706	1,844	1,423	3,983
Girls	0	0	281	1,414	2,359	4,054
Total	1	9	987	3,258	3,786	8,037

Source: NECTA Statistics Book, page 8, CSEE, 2018

The report is intended to provide feedback to educational stakeholders on the performance of candidates, with the aim of improving candidates' performance by revealing their weaknesses and strengths in responding to the examination questions.

Generally, the report will help in enhancing the teaching-learning process and therefore improve candidates' performance.

The following section indicates the analysis of each question by briefly giving the demands of the questions, the way the candidates responded and the reasons for their good or poor performance in each question. Some extracts of the sample answers showing candidates' good and poor responses have been included. In analyzing candidates' performance in each question, the pass scale used were 0 - 29; indicating poor performance, 30 - 64 average performance and 65 - 100 good performance. Thus, when the performance of candidates falls under the certain group, the performance is described according to that particular group.

2.0 ANALYSIS OF THE CANDIDATES' PERFORMANCE ON EACH QUESTION IN 034/1-AGRICULTURAL SCIENCE 1

2.1 SECTION A: OBJECTIVE QUESTIONS

2.1.1 Question 1: Question 1: Multiple Choice Items

This question comprised of ten items drawn from various topics (Farm Records and Accounts, Farm Workshop, Factors Affecting Crop Production, Soil Fertility and Productivity, Agricultural Extension, Sheep Farming, Agro-Forestry, Agricultural Development in Tanzania, Soil and Water Conservation and Annual Crops Production). The candidates were required to choose the correct answer from among the given five alternatives.

The question was attempted by 8,094 (99.9%) candidates of which; 2,411(29.8%) candidates scored 0 to 2 marks; 5,428 (67%) candidates scored 3 to 6 marks and 255 (3.2%) candidates scored 7 to 10 out of the 10 marks allocated to the question. The statistics show general good performance of the candidates since 5,683 (69.2%) candidates scored 3 to 10 marks. Figure 1.1 shows the distribution of the candidates' scores in the question.

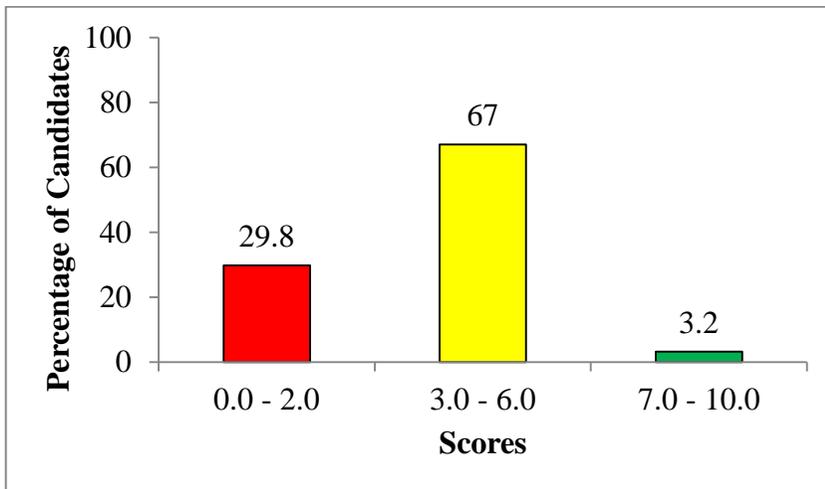


Figure 1.1: *Candidates' Performance in Question 1*

In accordance to Figure 1.1, the general performance of the candidates was good as 70.2 percent of the candidates scored of 30 percent and above. Good performance of the candidates in this question was a result of good mastery of the topics by most of the candidates in the question items.

The observation shows that, most candidates provided correct responses in items (iii), (iv), (v), (vi), (vii), (viii) and (ix) and responded incorrectly in items (i), (ii) and (x). The analysis of candidates' responses to the items in which the candidates responded correctly is shown below:

In item (iii), the correct response was C (mosaic) for the crop disease that is caused by virus. The distracters were A (blight), B (canker), D (rust) and E (mildew). In this item, the majority of the candidates showed good understanding of causes of crop diseases. This good understanding of the topic enabled them to choose the correct response.

The correct option for the type of fertilizer which help in the development of the root system in item (iv) was D (Triple super- phosphate). In this item most of the candidates proved adequate knowledge on types of fertilizers and their roles. The incorrect options were A (Sulphate of Ammonia), B (Urea), C (Muriate of Potash) and E (Calcium Ammonium Nitrate).

In item (v), the correct response was A (Learning by doing) as the most effective way of learning in Agricultural Extension by rural people. The distracters were B (Learning by listening), C (Learning by innovating), D

(Learning by watching) and E (Learning by reading). The candidates demonstrated good mastery of agricultural extension teaching methods.

Option D (Docking) was the correct response in item (vi); in which the candidates were required to choose the management practice in sheep that allows mating to take place with little difficulty. The incorrect responses were A (Castration), B (Shearing), C (Dehorning) and E (Debeaking). Most of the candidates responded correctly by choosing option D (docking). This is an indication that the candidates had enough knowledge and practical skills on sheep management practices.

In item (vii), the candidates were required to choose the terminology which refers to growing of crops and trees or shrubs on the same piece of land. The correct response was C (Agrisilvicultural). Most of the candidates gave correct response in this item; signifying good understanding of terminologies used in agroforestry. The incorrect responses were A (Silvopastoral), B (Agrosilvopastoral), D (Apiforestry) and E (Entomoforestry).

In item (viii), the correct option was B (Simple and inefficient tools); as the economic problem that hinders agricultural development in Tanzania. The incorrect options were A (Scarcity of inputs), C (Poor marketing facilities), D (Limited research facilities) and E (Poor health in part of the farmers). The candidates demonstrated good understanding of the main problems facing agriculture in Tanzania as they were able to choose the correct response from among the alternatives given despite that all the distracters were the types of problems facing farmers in Tanzania.

The correct response for item (ix) was E (Monocropping); as the farming practice which causes soil to lose its fertility. The distracters were A (Alley cropping), B (Mixed cropping), C (Intercropping) and D (Multistorrey cropping). The candidates were knowledgeable enough on different practices since they were capable of distinguishing the patterns of cropping from the agroforestry practices, and therefore managed to choose the correct response.

On the other hand, the candidates responded incorrectly in items (i), (ii), and (x). In item (i), the correct response was E (Valuation) as a list of all that a farmer owns and the cash value of each item. The incorrect responses were A (Asset), B (Inventory), C (Liability) and D (Stock). Majority of candidates opted for option B (inventory) because they just considered the first part of the item stem and left the second part of the item stem, which gives the value

of the asset and in turn the statement to mean valuation. The candidates were unable to provide correct response from the question because they lacked knowledge on farm records.

In item (ii), that required candidates to choose a tool that is used to remove out nails, the correct response for this item was E (Spincers). Most of the candidates were attracted to option D (ball pein hammer) as they mixed up the functions of the ball pein hammer and that of claw hammer which performs the same function. The candidates showed lack of knowledge and practical skills on different types of farm workshop tools and their functions. The distracters in this item were A (Screw driver), B (Chisel), C (Brace) and D (Ball pein hammer).

Option C (Early sowing), was the correct response on how maize streak virus disease can be best controlled in item (x). The incorrect alternatives were A (Burning crops), B (Early harvesting), D (Uprooting of diseased plants) and E (Application of Nitrogen fertilizers). Majority of the candidates opted for option D (Uprooting of diseased plants) for the fact that; viral diseases cannot be treated and hence they thought that the only way to control the disease is to remove the diseased plants from the field. They failed to choose correct response due to inadequate knowledge on methods of controlling crop diseases.

2.1.2 Question 2: Matching Items

The question consisted of ten items extracted from the topic on Factors Affecting Livestock Production. The candidates were required to match the items in List A with the responses in List B by writing the letter of the correct response from List B beside the item number in List A. List A consisted of symptoms of diseases with their corresponding diseases in List B.

The question was attempted by 8,064 (99.6%) candidates whereby; 6,617 (82.1%) candidates scored 0 to 2 marks; 1,423 (17.6%) candidates scored 3 to 6 marks and 24 (0.3%) candidates scored 7 to 10 out of 10 marks allocated to the question. The general performance in this question was poor considering that; 1,447 (17.9%) candidates scored 3 to 10 marks. Figure 1.2 depicts the scores of the candidates in the question.

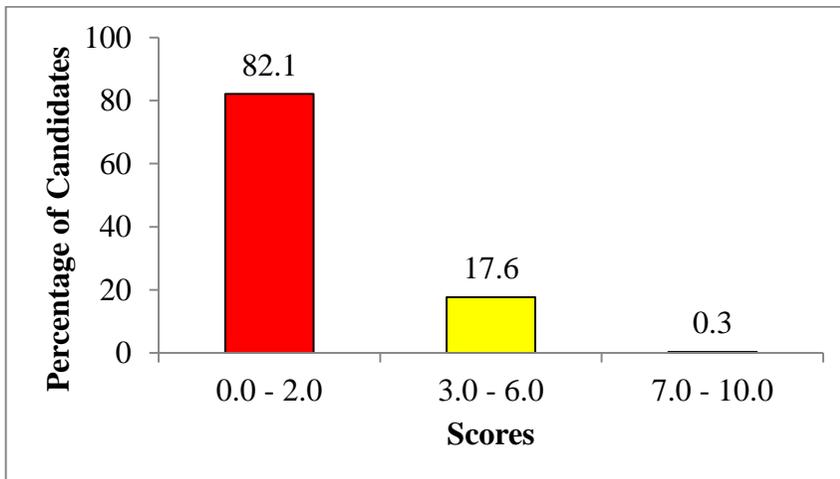


Figure 1.2: *Candidates' Performance in Question 2*

Figure 1.2 illustrates poor performance of the candidates in the question. In this question only 17.9 percent of the candidates scored 30 percent and above. This is attributed to inadequate knowledge and field practical skills in livestock diseases by most of the candidates.

Candidates mostly provided incorrect responses in most of the items. The items in which most of the candidates gave incorrect responses for the diseases symptoms and their corresponding diseases were item (ii); the disease characterized by swollen lymph nodes -L (Trypanosomiasis), item (iii); the disease characterized by the discharge of blood stained urine -M (Babesiosis), item (vii); the disease characterized by the animal discharging mucus from the mouth, becoming weak, laying down being unable to rise again -I (East Coast Fever), item (viii); the disease characterized by sudden abortion shown by blood stained tail and rump of an animal-B (Brucellosis), item (ix); the disease characterized by swellings in areas of heavy muscles which when pressed gives out peculiar cracking sound-D (Black quarter) and item (x); the disease characterized by the animal showing nervous symptoms, moving in a circle and twisting of eye lids falling down its legs keep paddling in the air-J (Heart water). Failure to provide correct responses in these items by most of the candidates is attributed to inadequate knowledge and lack of field practical exposure on livestock diseases, thus they ended up guessing for the correct responses.

On the other hand, majority of the candidates responded correctly in items (i), (iv), (v), and (vi). The items and their corresponding correct responses

provided by most of the candidates were: item (i); the disease characterized by the animal giving out excessive saliva and difficult breathing -F (Foot and Mouth Disease), item (iv); the disease characterized by the animal giving out a lot of tears from the eyes. -H (Rinderpest), item (v); the disease characterized by reddish and swollen udder -A (Mastitis) and item (vi); the disease characterized by the animal bleeding non clotting blood from the natural openings -C (Anthrax). In these items, the candidates were able to provide correct responses due to the fact that the diseases are more common in livestock keeping practice.

2.2 SECTION B: SHORT ANSWER QUESTIONS

2.2.1 Question 3: Crop Protection

The question constituted two parts (a) and (b). The candidates were required to (a) state the meaning of biological weed control and give three methods in which biological weed control is applied and (b) classify herbicides on the basis of time of application and briefly explain their time of application.

The question was attempted by 7,608 (93.9%); among which 7,118 (93.6%) candidates scored 0 to 2 marks; 433 (5.7%) candidates scored 2.5 to 4.5 marks and only 57 (0.7%) candidates scored 5 to 6.5 marks of the 7 marks allocated to the question. The data indicates poor performance of the candidates in this question with only 490 (6.4%) candidates scored 2.5 to 6.5 marks. Figure 1.3 represents the candidates' scores in the question.

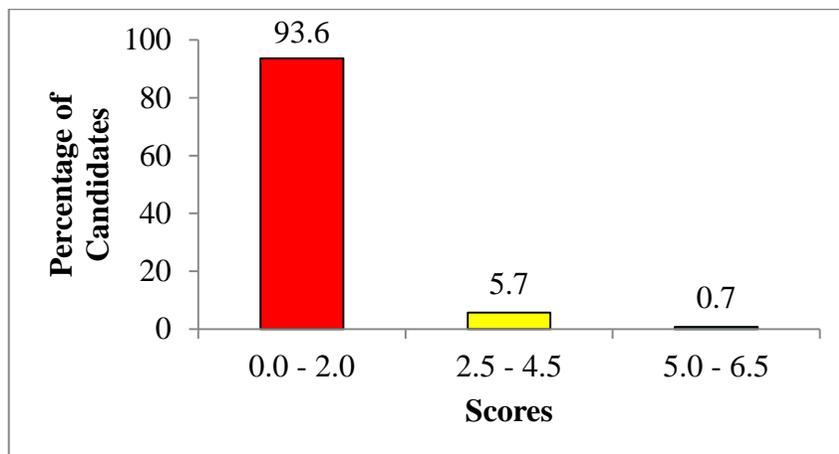


Figure 1.3: *Candidates' Performance in Question 3*

Figure 1.3 signifies poor performance of the candidates in the question as only 6.4 percent of the candidates scored 30 percent and above. Poor performance in this question was caused by incompetence in the mastery of weed control methods by most of the candidates.

Candidates who had poor performance in this question provided incorrect responses in both parts of the question. In part (a), most of the candidates provided incorrect responses in relation to the meaning of the term biological weed control and the methods applicable in biological control of weeds. Examples of incorrect responses provided were: - *biological weed control is the control of weeds by not using chemical methods* and *biological weed control is the control of weeds by biological means*. Some of the incorrect responses regarding to the methods for biological control of weeds were: *uprooting of weeds, hand method, mulching, burning, spraying, crop rotation and early planting*.

In part (b), the majority of the candidates failed to classify herbicide on the basis of time of application. They provided incorrect responses like:- *In the morning, in the evening, during harvesting, during rainy season and during absence of sun*. Incorrect responses provided by the candidates indicated lack of knowledge on methods of weed control and classification of herbicides by most of the candidates. Extract 1.1.1 represents poor responses in the question.

Extract 1.1.1

3.	(a) <u>Biological weed control</u> - Is a method of we controlling weed biologically without using the any chemicals of the farm.
	<u>Method of biological weed control</u>
	(i) To cut the weed by using a hoe.
	(ii) To collect those weeds together
	(iii) To make a fire and also those ashes are act as a manure.
	(b) <u>Herbicides</u> - Are chemicals used to control weed on the farm.
	<u>The best time of applying herbicides are</u>
	it its applied during there are no rainfall and climate every day is sun rays.

Extract 1.1.1 shows a sample of poor responses from a candidate who performed poorly in this question. The candidate failed to provide correct responses in both parts of the question, signifying poor mastery of content.

On the other hand, candidates who performed well in this question gave correct responses to almost all parts of the question except in part (b) where most of them failed to explain the time of application for the classes of herbicides.

In part (a), the candidates clearly stated the meaning of biological weed control and correctly gave the methods applicable in biological control of weeds. Likewise in part (b), the candidates managed to classify herbicides on the basis of time of application but failed to give exactly the time of its application. Most of the candidates explained the time of application of pre-emergence and post-emergence herbicides as applied before planting and after planting, respectively. Provision of correct responses by candidates in this question is an indication that the candidates had good understanding of the methods of weed control and classification of herbicides. Extract 1.1.2 is a sample of good responses by one of the candidates.

Extract 1.1.2

03	a. Biological weed control is the method of introducing organisms in a farm so as to remove weeds. The following are the methods of biological weed control. i. Employ of birds- This is the introduction of birds such as chicken and ducks so as to eat all grasses. ii. Use of animals- This is the use of animals in controlling weeds. Animal use is not very suitable because animals can eat crops. iii. Use of insects- It is the introduction of insects such as Mites to feed on weeds.
	b. i. Pre-emergence herbicides- These are herbicides applied soon after planting to kill weeds which are already germinated. ii. Post-emergence herbicides. These are herbicides applied after seed germination to kill seeds of weeds and not leaves

Extract 1.1.2 illustrates one of the candidates' good responses in the question. Good mastery of the content enabled the candidates to provide correct responses in both parts of the question.

2.2.2 Question 4: Animal Feeds and Feeding

The question had two parts (a) and (b). The candidates were required to (a) outline six advantages of silage making, (b) (i) give the meaning of the term 'ration' as it is used in animal feeding and (b) (ii) account for any five factors to be considered in formulating rations.

The question was attempted by 7,706 (95.1%) candidates. The statistics show that 5,927 (76.9%) candidates scored 0 to 2.5 marks; 1,744 (22.6%) candidates scored 3 to 5.5 marks and 35 (0.5%) candidates scored 6 to 9 out of 9 marks in the question. The analysis indicates poor performance of the candidates in this question, considering that 1,779 (23.1%) candidates scored 3 to 9 marks. Figure 1.4 portrays the students' scores in the question.

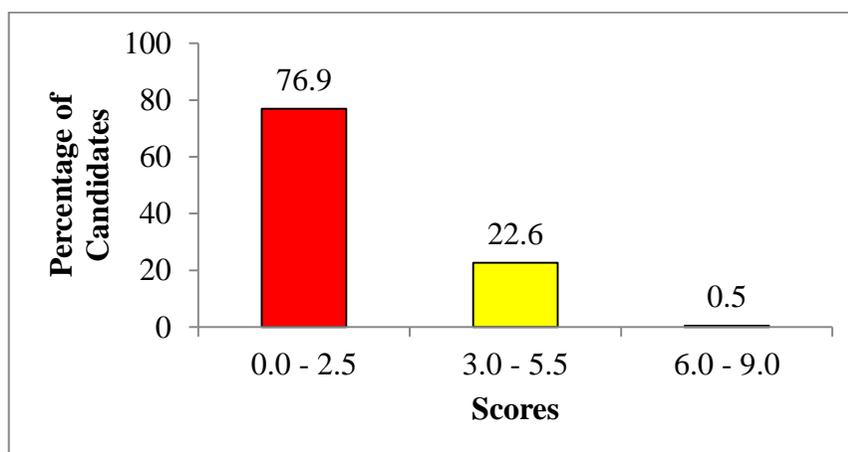


Figure 1.4: Candidates' Performance in Question 4

As per Figure 1.4, the general performance of the candidates in this question was poor as 23.1 percent of the candidates scored 30 percent and above. Poor performance of the candidates in this question was due to inadequate knowledge on animal feeds demonstrated by most of the candidates.

Candidates who did poorly in this question were unable to provide correct responses on the advantages of silage making in part (a) as well as giving meaning of the term 'ration' and factors to be considered when preparing a ration in part (b).

Examples of incorrect responses provided for the advantages of silage making in part (a) were: *it help animal to be strong and to have good health, used for development of animal, it help to reduce feed to animal and it provide energy and nutrient to animal.*

Moreover, in part (b) (i) the incorrect responses for the meaning of the term ration were such as *ration is the gap between one production and another, ration is the space where animal eat or feed, ration is the process of classify the animals, is the grouping the animal from their group, ration is the process where to control the animal and ration is the process that can be used from the farm to control pests and diseases to the soil.* In (b) (ii), the candidates failed to account for the factors to be considered in formulation of rations. They provided incorrect responses like *poor government support, low education, low level of science and technology, availability of skills knowledge, capital, market, management and equipment.* All these incorrect responses show that candidates did not have appropriate knowledge on animal feeds and feeding. Examples of poor responses provided by one of the candidates in the question are illustrated in extract 1.2.1.

Extract 1.2.1

4a)	and its used for the food of livestock fodder.
	It collected into the silo; its is used for animal production into the conservation of animal plans in the country
	It help people to get manure after eating of the other animals such as goats, sheep cattle and othe the people can use the manure for economic activity.
	It help animal to get food substance; this means that the animal can get the food which is stored in a silo after few years or day.
	Therefore the advantage of silage are very important things because its used for giving food substance of animal in the society.
b(i)	Ration: Is the amount of of food substance which is not excreted into the animal feed
(ii)	Factor to be consider the in formulating rations.
	i) Poor capital
	ii) Marketing
	iii) Low level of science and technology
	iv) poor transport and communication system.
	v) poor land.

Extract 1.2.1 is a vivid example of responses from a candidate who lacked knowledge in the topic of animal feeds and feeding and hence provided incorrect responses in both parts of the question.

The candidates who performed well in this question provided correct responses in part (b) and failed to attempt correctly in part (a). In part (b) (i),

candidates gave correct meaning of the term ration and consequently accounted correctly the factors to be considered when formulating rations. This justifies that candidates had adequate knowledge on feed formulations.

However, in part (b) these candidates did not manage to outline advantages of silage making. Most of them provided incorrect responses such as: *source of livestock fodder, helps the farmer to feed animals during the early season, it is palatable to animals, source of income, source of nutrients to animal, it help the animal to produce a lot of milk, it protect silage and it save time.* Provision of incorrect responses in part (b) of the question is an indication that the candidates possessed inadequate knowledge in respect to fodder crops. Extract 1.2.2 exemplifies good responses in the question.

Extract 1.2.2

Q4.	(a)	(i) It is the source of feed to animal.	
		(ii) It serves a farmer during dry season to get animal feeds.	
		(iii) It reduce costs of buying animal feeds.	
		(iv) It provide nutrients to animals.	
		(v) It help in preparation of ration for a farmer.	
		(vi) It help to increase and maintain milk production in the farm.	
	(b)	(i) Ration is the amount of feed given to animal per day or within twelve (12) hours.	
		(ii) (a) Type of ration; for example, a farmer should consider which type of ration is going to be prepared if it is maintenance, production or balance ration & certain feeds should be involved in the ration.	
		(ii) Type of animal, before preparing animal ration.	

Q4	(i) farmer should first consider which type of animal is going to feed & prepared ration, for example, if it is animal for meat production or milk production certain feeds should be involved.
	(ii) Amount of feed mixture to be prepared: before preparing animal feed a farmer should first consider the amount of feed mixture to be prepared for example if it is 500kg of feed mixture so a farmer should either prepare 100kg of maize meal and 100kg of prote in contents.
	(iii) Costs of feed ingredients to be used in a certain ration: A farmer should first consider the capital and costs of each kind of feed mixture to be used in preparation of ration. for example if the cost for buying total feed ingredients is 2000/ish and the capital available is 1500/ish so the farmer should reduce the amount of feed ingredients.
	(iv) There should be different feed ingredients and they should be used per day. A farmer should use different feed ingredients s.o to get good animal ration but also the feed prepared should be used per day.

Extract 1.2.2 presents a sample of good responses from one of the candidates who managed to provide correct responses to part (b) but missed part (a). This indicates that the candidate had partial knowledge on the subject matter.

2.2.3 Question 5: Factors of Production

The question was divided into two parts (a) and (b). The candidates were required to (a) (i) give the meaning of a factor of production, (a) (ii) analyze three characteristics of land as a factor of production and (b) examine four roles of entrepreneurship as a factor of production.

The question was attempted by 7,596 (93.8%) candidates of which 6,712 (88.4%) candidates scored 0 to 2 marks; 850 (11.2%) candidates scored 2.5 to 5 marks and 34 (0.4%) candidates scored from 5.5 to 8 marks out of the 8 marks allocated in the question. These data depicts poor performance of candidates in the question with 884 (11.6%) candidates scored 2.5 to 8 marks. Figure 1.5 represents the candidates' scores in the question.

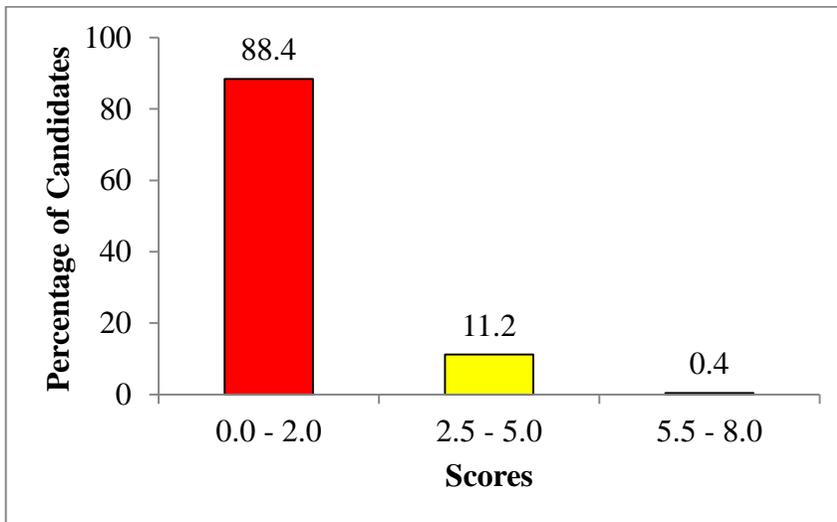


Figure 1.5: *Candidates' Performance in Question 5*

With respect to Figure 1.5, candidates' performance in this question was poor as only 11.6 percent of the candidates scored 30 percent and above. This was caused by inadequate knowledge possessed by most of the candidates on the factors of production.

The candidates who performed poorly in this question responded incorrectly in most parts of the question. In part (a) (i), most of the candidates failed to give the meaning of factor of production; with a few of them providing the correct meaning. Some of the incorrect responses provided by candidates in respect to the meaning of factor of production were: *area of living animals and human being, area for doing different activities like; fishing, mining and agricultural activities and actually act to be land, labour and marketing*. Likewise in part (a) (ii); most of the candidates failed to analyse the characteristics of land as a factor of production and consequently gave incorrect responses like '*control of soil erosion, increase cost of production, increase soil fertility and control weeds*'.

In part (b), the majority of the candidates in this group also did not manage to examine the role of entrepreneurship as a factor of production. As a result, they provided incorrect responses such: *provision of employment, source of government revenue, growth of town and city and source of income*. This signifies that the candidates were not well acquainted with the subject matter

on factors of production. Extract 1.3.1 is an example of responses from one of the candidates who performed poorly in the question.

Extract 1.3.1

5. (a) (i)	Factor of production, refer to the production which are determine the problem for other can be to improve the keeping production.
(ii)	→ Land as a factor of production when by to get the good soil fertilize that cause → Land as to get the enough soil structure through to improve very production
...	→ Land as to get the very soil texture when it can cause the good production.
(b) (i)	Labours
(ii)	Capital
(iii)	Land.
(iv)	Market

Extract 1.3.1 denotes a sample of poor responses in the question. The candidate provided incorrect responses in the whole question, indicating lack of knowledge on factors of production.

In contrary, candidates with good performance in this question responded correctly in almost all parts of the question. The candidates gave correct meaning of a factor of production in part (a) (i) and also analysed correctly the characteristics of land as a factor of production in part (a)(ii). However, a few of them were unable to analyse the characteristics of land as a factor of production. Thus, they ended up giving incorrect responses such as: *land is endowed with vast mineral resources and land is unlimited.*

In addition they examined correctly the role of entrepreneurship as a factor of production in part (b), showing competence in the topic on factors of production. Extract 1.3.2 is a sample of responses from a candidate who did well in the question.

Extract 1.3.2

5 (vii)	Factors of production are resources which are used in production to produce goods and services.
(ii)	Land govern the distribution of crops in a particular place. - Different types of place contain different types of land for different type of crops and for different type of market. - The amount of rainfall is the one of the factor that govern the distribution of farming in Tanzania.
(b) (i)	Entrepreneur organized and manage other factors of production. Entrepreneur is the one that overseeing all other factors of production and planning a certain production to be produced at a certain time.
(ii)	Entrepreneur bear risk resulting from his/her action and responsibility. By controlling and governing other factors the entrepreneurship tend to take any risk resulting from his/her responsibility and decision in the production.
(iii)	He/she control a manage of a certain production. Entrepreneur is the one that start a certain production and is the one that pay wages, buy goods and others in the production.
5 (b) (iv)	Entrepreneurship hires other factors of production. He/she tend to encourage and mobilize other factors of production to produce a certain goods or services.

Extract 1.3.2 portrays good responses in the question. The candidate was knowledgeable enough on the topic, thus provided correct responses in all parts of the question.

2.2.4 Question 6: Soil Formation

The question consisted of two parts (a) and (b). The candidates were required to (a) (i) give the meaning of a soil profile, (b) (ii) briefly describe the 'O' horizon in a soil profile and (b) briefly explain three importance of soil profile in crop production.

The question was attempted by 7,700 (95.1%) candidates whereby; 6,823 (88.6%) candidates scored 0 to 2 marks; 833 (10.8%) candidates scored 2.5

to 4.5 marks and the remaining 44 (0.6%) candidates scored 5 to 7 of the total 7 marks allocated in the question. The candidates' performance in this question was poor due to the fact that 877 (11.4%) candidates scored 2.5 to 7 marks. Candidates' scores is shown in Figure 1.6.

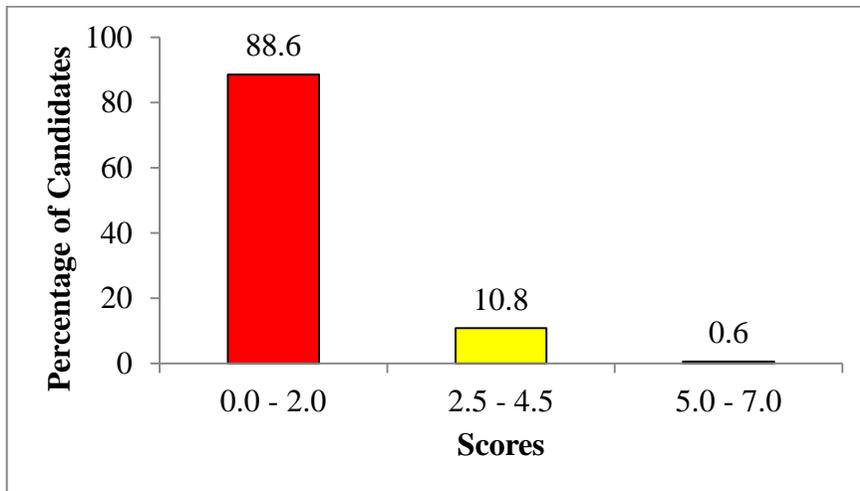


Figure 1.6: Candidates' Performance in Question 6

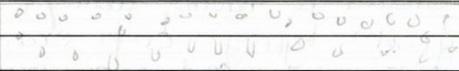
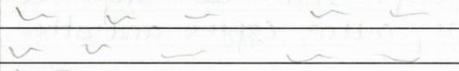
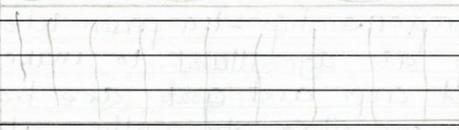
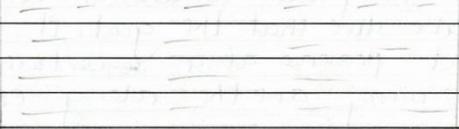
Figure 1.6 portrays poor performance of the candidates in the question as 11.4 percent of the candidates scored 30 percent and above. Candidates' poor performance in this question was caused by poor understanding of the concept of soil profile and failure to meet the demand of the question.

All parts of the question were incorrectly responded by the majority of the candidates who performed poorly in this question. In part (a) (i), the candidates failed to give the correct meaning of the term soil profile. Examples of incorrect responses from some of the candidates were: *soil profile is the process production which they consider, is negative logarithm of the soil within the earth surface soil and is the fines or coarseness of the soil particles within the soil*. Similarly, in part (a) (ii), candidates failed to give a description of 'O' horizon in the soil profile and provided incorrect responses such as: *the mature of indicator, to the profile in the agriculture and to understanding into the soil*. These responses justify lack of knowledge and field practical exposure on soil profile by candidates.

In part (b), most of the candidates explained the importance of soil by giving responses such as *it support plant growth, it provide nutrients to the plants and is a habitat to many living organisms* instead of explaining the

importance of soil profile in crop production. In this part, candidates failed to understand the demand of the question, thus provided responses that were not related to the demands of the question. Extract 1.4.1 represents poor responses from one of the candidates.

Extract 1.4.1

<p>6 @ 1/ soil profile is the percentage of the - soil particles and has four horizons which is 'O' horizon, 'A' horizon, 'B' horizon, 'C' horizon 2/ Example of that horizons.</p>		
		O
		A
		B
		C
<p>6 @ 1/ 'O' horizons - is the most best horizons, because it produces good which have good in equality because it is a first horizon. and that - soil have enough nutrient.</p>		
<p>(b) The following are the importance of - soil profile in crop production 1/ it help the crops to get nutrient 2/ it help the crops like maize to grow faster and develop well 3/ it help the crops to get all basic need easily like oxygen, light.</p>		

Extract 1.4.1 shows a sample of candidate's poor responses. Lack of knowledge and field practical exposure on soil profile and failure to meet the demands of the question led the candidate to provide incorrect responses in all parts of the question.

However, the candidates who performed well in this question provided correct responses in almost all parts of the question, except in part (b) where

most of the candidates did not give good explanation on the importance of soil profile in crop production. Furthermore, candidates gave correct meaning of a soil profile and good description of 'O' horizon in the soil profile in part (a) (i) and (ii) respectively.

In part (b); the majority of these candidates correctly cited the importance of soil profile in influencing various physical and chemical properties of the soil, but failed to explain exactly how the physical and chemical properties of the soil are affected by the depth of the horizon in the soil profile. In general the candidates demonstrated good mastery in the topic. Examples of good responses in the question are shown in extract 1.4.2.

Extract 1.4.2

6.a) i) Soil profile, is the vertical section of the soil through horizons.
ii) 'O' horizon is the horizon that is found on the
6.a) ii) top soil, it is dark in colour this is because of the presence of organic matter.
b) Importance of soil profile.
i) It influences aeration and root penetration.
ii) Hard pans, plough pans and imprevious - layers slows down the rate of flow of water.
iii) The depth of top soil is important in agriculture because most plants grow on the top soil.

Extract 1.4.2 indicates one of the candidates' good responses in the question. The candidate showed good mastery of the topic on soil profile by providing correct responses in both parts of the question.

2.2.5 Question 7: Agricultural Extension

The question had two parts (a) and (b). The candidates were required to (a) describe the characteristics of each of the following categories of innovation adopters: (i) late majority, (ii) early majority, (iii) laggards (iv) innovators, (b) (i) distinguish between adoption of an innovation and diffusion of an

innovation and (b) (ii) assess the significance of ‘evaluation’ and 'trial' in the process of adoption of an innovation.

The question was attempted by 5,480 (67.7%) candidates. The data show that 4,298 (78.4%) candidates scored 0 to 2 marks; 1,022 (18.7%) candidates scored 2.5 to 5 marks and 160 (2.9%) candidates scored 5.5 to 8 marks of the 8 marks allocated in the question. The general performance in this question was poor; due to the fact that 1,184 (21.6%) candidates scored 2.5 to 8 marks. Figure 1.7 shows the distribution of the students’ scores.

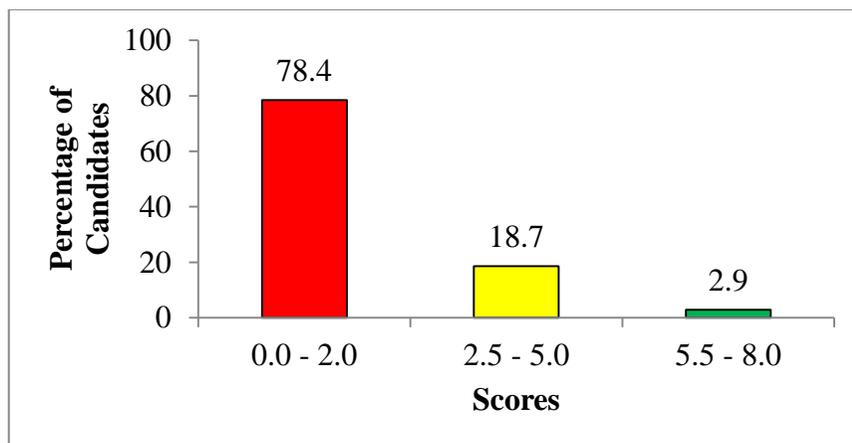


Figure 1.7: *Candidates’ Performance in Question 7*

Figure 1.7 denotes poor performance of candidates in the question. The data in the figure indicate that 21.5 percent of the candidates scored 30 percent and above. The analysis revealed that incompetence of most of the candidates in mastery of the topic on agricultural extension was a major cause for the failure in the question.

Most of the candidates who performed poorly provided incorrect responses in all parts of the question. In part (a), the candidates incorrectly described the groups of innovation adopters. Examples of such incorrect descriptions were (i) late majority-*each of the person need to be a leader, these are people which involve in practicing a certain activity*; (ii) early majority- *they are easily to get knowledge, this is the group which will involve in the practicing of a certain activity after measuring or determining the late majority if they have got a profit or loss*; (iii) laggards- *they perform principle of one man one*

vote, are people who learn through mass media and (iv) innovators- they have ability to get new ideas, these are person who dealing with the process of transmitting knowledge from their practiced to the farmers. In part (b) (i) the candidates distinguished between adoption of an innovation and diffusion of an innovation incorrectly. An example of incorrect responses from one of the candidates were: adoption of innovation is the mental adoption from earning news and information, these are people which they adopt the same activity so as to determine if they will have a profit or loss if they adopt such activity while diffusion of innovation is include getting information from high state to low, the situation where the person decide to practice other determining the profit and the loss of such practice. Similarly, these candidates failed to assess the significance of 'evaluation' and 'trial' in the adoption process in part (b) (ii). Some of the incorrect responses given were such as: evaluation is the process of which adoption of an innovation and trial is process which adoption an innovation. This group of candidates lacked subject matter knowledge on agricultural extension as it is exemplified in extract 1.5.1 from one of the candidates who performed poorly in the question.

Extract 1.5.1

7	<p> a) The characteristics of each of the following i) late majority - characterized by consuming time ii) Early majority - it characterized by - not consuming time, it save time iii) innovators - it can be good or bad </p>	
7	<p> b) i) The following are the significance of - evaluation and trial in the process of - adoption of an innovation - It used to record more information - of different business of the farmer - It help a farmer to know the loss- and the profit to the farm - It help a farmer to know how - many money were used and how - many money were stored. </p>	

Extract 1.5.1 illustrates a sample of the responses from the candidate who responded incorrectly in the whole question due to lack of knowledge on agricultural extension.

Contrary to the candidates who performed poorly, the candidates who performed well proved to acquire adequate knowledge on agricultural extension as most of them provided correct responses in all parts of the question. In part (a), the candidates managed to give correct description of different named groups of innovation adopters. Moreover, these candidates correctly distinguished between adoption of an innovation and diffusion of an innovation in part (b) (i). The candidates also correctly assessed the significance of 'evaluation' and 'trial' in the adoption process in part (b)(ii). A sample of good responses in this question is illustrated in Extract 1.5.2.

Extract 1.5.2

7	(a)	
	(i) Late majority- These are the adopters of innovation, where by these can not change their methods easily.	
	- They can change their methods until they correct more informations.	
	(ii) Early majority- These are adopters of innovations where by they do their things with cautions	
	- They are cautious people	
	- They do cooperate with an early adopters	
	(iii) Laggards- These are the last people in adopting the innovations. These are more traditionalists.	
	- They are more traditionalists	
	- They are not ready to change their methods of doing things	
	(iv) Innovators- These are the people who adopt the innovations early than other groups	
	- They are willing to take any risks that may occur	
	- They implement the new innovations	
	- They are regarded as model from early adopters.	

(b) (i)	Adoption of an Innovation This is the process where by somebody say a farmer decides to take up and implement the new idea, technique, or methods.	Diffusion of an innovation This is the process where by an innovation spread from originating source to many users in different places.
(ii) Significance of Evaluation	<ul style="list-style-type: none"> - This stage helps the individual to think mentally if he/she has to follow a particular innovation or not. - It also helps to think on positive or negative effect on such a particular innovation 	
	<p>Significance of Trial</p> <ul style="list-style-type: none"> - In this stage the individual tries to apply the innovation on small scale to see whether the innovation works or not. - It also gives the individual power to see the reality impact of usage of such innovation 	

Extract 1.5.2 depicts a sample of responses in the question in which the candidate performed well in all parts of the question. This indicates that the candidates possess adequate knowledge on agricultural extension.

2.2.6 Question 8: Surveying

The question consisted of two parts (a) and (b). The candidates were required to (a) (i) give the meaning of surveying, (b) (ii) state four purposes of surveying and (b) elaborate the functions of six instruments used in chaining method of linear measurement in surveying.

The question was attempted by 7,928 (97.9%) candidates; whereby 1,860 (23.5%) candidates scored 0 to 2.5 marks; 4,119 (51.9%) candidates scored 3 to 5.5 marks and 1,949 (24.6%) candidates scored 6 to 9 out of the 9 marks allocated to the question. The analysis shows good performance of the candidates in the question as 6,068 (76.5%) candidates scored 3 to 9 marks. Figure 1.8 represents the candidates' scores in the question.

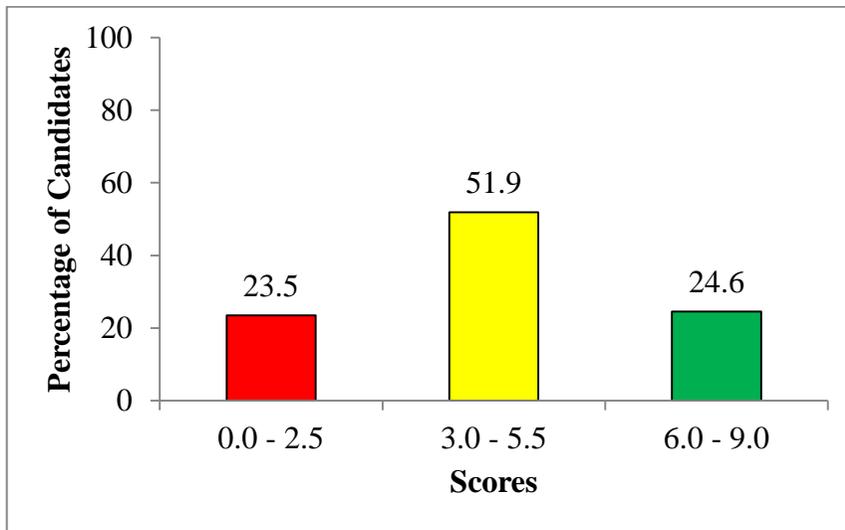


Figure 1.8: *Candidates' Performance in Question 8*

Figure 1.8 shows good performance of candidates in the question in which 76.5 percent of the candidates scored 30 percent and above. Good performance of candidates in the question is attributed to satisfactory knowledge and field practical skills possessed by most of the candidates on surveying.

Most of the candidates who performed well in this question responded correctly in almost all parts of the question. In part (a) (i), these candidates managed to give the meaning of surveying and consequently stated well the purpose of surveying in part (a) (ii). Likewise, the candidates managed to identify instruments used in chain surveying and elaborated correctly their functions in part (b). However, a few of these candidates failed to identify all the instruments, implying the candidates were well equipped with knowledge and field practical exposure on chain surveying. Extract 1.6.1 is an example of good responses provided in the question.

Extract 1.6.1

\$	a)	
	i)	Surveying - Is the process of observing and measuring in order to determine sizes, boundaries, distances, positions and elevations of various features around the surveyed field
	ii)	To determine positions of various features around the surveyed field
		- To determine horizontal and vertical distances
		- To determine physical and non-physical features around the surveyed field.
		- To obtain area of a surveyed field
	b)	Chain - Used to obtain horizontal measurements
		- Ranging pole - Used to align points in a straight line.
		- Arrow - Used to mark the end of chain length
		- Pegs - Used to establish permanent station points around the surveyed area
		- Field note book - Used to record information

Extract 1.6.1 depicts a sample of responses from a candidate who did well in the question. The candidate got correct all the parts, signifying to be knowledgeable and skilled enough on surveying.

With respect to the group of candidates who did poorly in this question, the analysis showed that the candidates provided incorrect responses in all parts of the question. In part (a) (i), the candidates provided a variety of incorrect responses for the meaning of surveying. Some of the incorrect responses given in this part were: *the scientific and systematic process of collecting, analyzing and interpreting data basing on a certain phenomenon, is the process whereby people move from one place to another to look the something and then to get the knowledge in this areas to go the surveying, is the branch of science which deals with the scientific methods of surveying of the people and is the process of choosing animals.* In part (a) (ii); candidates failed to state the purpose of surveying, resulting into delivering wrong and

irrelevant responses. Examples of such responses were: *it save time, it consume time, is refreshment and is part of studies*. In part (b), candidates failed to elaborate the functions of the instruments used in chain surveying as per question. The candidates also failed to identify the instruments. Some of incorrect responses provided in this part were: *used for chain survey, used for the linear, improve mass education and provide chain and measurement*. These incorrect responses signify candidates' inadequate knowledge and field practical skills on chain surveying. Extract 1.6.2 is one of the candidates' poor responses in the question.

Extract 1.6.2

	8' @ i) Surveying is the process where by the farmer measure the area and check them area for the many purpose example building, farm for cultivation activities.
	ii) four purpose of surveying
	(i) To check the topograph of the land
	(ii) To know the types of land for the agriculture activities
	(iii) To know the land which activities are suitable in it
	iv) prepare the farmer
	b) Functions of linear measurement in surveying.
	-It used to measure distance.
	-It used to measure vertical and horizontal

Extract 1.6.2 presents a sample of the candidates' poor responses to the question. The candidate was unable to provide correct responses to both parts of the question. The candidate lacked knowledge and skills on chain surveying.

2.2.7 Question 9: Forestry Crops Production

The question comprised two parts (a) and (b). The candidates were required to (a) (i) give the meaning of wood preservation, (a) (ii) briefly describe the cold dipping methods of applying preservatives and name two types of

wood for which the method is mostly used and (b) point out two advantages and four disadvantages of creosote oil as a wood preservative.

The question was attempted by 7,162 (88.4%) candidates of whom; 6,657 (92.9%) candidates scored 0 to 1.5 marks; 496 (7.0%) candidates scored 2 to 3.5 marks and 9 (0.1%) candidates scored 4 to 5 of the total 6 marks in the question. The performance of the candidates in the question was therefore poor, with only 505 (7.1%) candidates scored 2 to 5 marks. Figure 1.9 denotes the candidates' scores in the question.

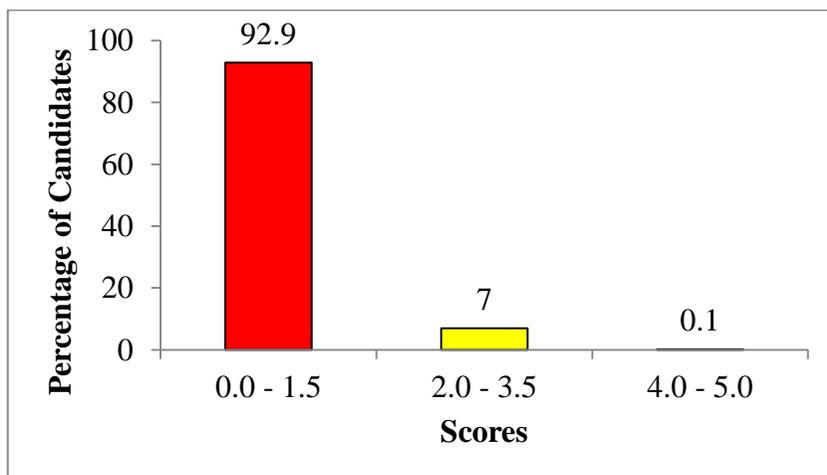


Figure 1.9: Candidates' Performance in Question 9

According to Figure 1.9, candidates performed poorly in this question. Inadequate knowledge and lack of practical exposure on wood preservation were observed to contribute to poor performance in this question by majority of the candidates.

The candidates, who did poorly in this question, provided incorrect responses to the meaning of wood preservation in part (a) (i). Some of incorrect responses provided were; *wood preservation is the way of preserving wood for wood activities such as building*, *wood preservation is the technique to preserve wood for commercial purpose*, and *wood preservation this is the wood used for construction of house and other masonry in plumbing*. In part (a) (ii), the candidates were unable to provide correct responses for the description of the cold dipping method of applying preservatives on wood and types of wood in which the method is mostly used. As a result, they gave incorrect responses such as *application of oil*

and insoluble in water and water cold dipping means application of water on wood preservatives and named incorrectly hard wood and flat wood as the types of wood in which the method is mostly used.

In part (b), the candidates failed to provide correct advantages and disadvantages of creosote oil as wood preservative and provided incorrect responses such as *it is less cost compared to the method, it allows wood to be used in different activities and it is cheap and easier to practice* as advantages and *it is expensive, it need skill or knowledge, it take much power than capital, it requires much time for its application and it is litter therefore pure management tend to affect the health of human beings* as disadvantages of using creosote oil as a wood preservative. The incorrect responses provided by the candidates indicated candidates' lack of knowledge and skills on wood preservation. Extract 1.7.1 is a sample of poor responses in the question.

Extract 1.7.1

Q21	(i) Wood preservation; is the process which used to conserve wood for other purpose. Example it make environment conservation, it used to building construction	

9(a)-	(ii) cold dipping method of applying preservatives
	<ul style="list-style-type: none"> • Through- Afforestation of trees. because Afforestation (It is used use preservatives wood for planting trees when people to cutting tree you must be planting to replace of cutting trees. • Through- Enacting laws and principle for conserved wood. because people you have introduce laws to can reduce deforestation of trees. • Avoid overgrazing, because overgrazing can cause environmental pollution. when people to kept many livestock in small area. also livestock can eating trees for planting because of lack of pastures or feed.
	The following are the types of wood which the method is mostly used
	<ul style="list-style-type: none"> • Soft wood. • Hard wood.
9(b)	Two advantages as a wood preservative.
	(i) wood preservative help to building construction
	(ii) wood preservative helps us source of fire wood for used cooking
	Four disadvantages
	(i) Breking of wood can cause parasite and disease which is pest to transmit disease.
	(ii) Low production potential
	(iii) shortage of income.
	(iv) shortage of employment.

Extract 1.7.1 is a sample of responses from a candidate who performed poorly in all parts the question showing lack of knowledge and skills on wood preservation.

The majority of the candidates, who performed well in this question, were able to provide correct responses to part (a) and (b), though not exhaustive. In part (a) (i), the candidates were able to give the correct meaning of wood preservation and description of cold dipping method of applying preservatives. In part (a) (ii) the candidates, likewise named correctly the

two types of wood in which the method of applying preservatives is mostly used. The candidates also pointed out correctly the advantages of using creosote oil as a wood preservative, although they did not exhaust all the disadvantages of using creosote oil as a wood preservative in part (b). This justifies adequate knowledge and skills on wood preservation by the candidates. Extract 1.7.2 represents good responses in the question.

Extract 1.7.2

		use only
9.	<p>a) i) Wood Preservation is the application of chemicals on wood in order to prevent it from damages such as insects, fungi and marine borers.</p> <p>ii) Cold dipping method of applying preservatives involves putting wood in a formulated wood preservatives unheated or boiled.</p> <p>The timbers wood for which it is suitable are</p> <p style="margin-left: 40px;">Leucaena wood</p> <p style="margin-left: 40px;">'Mninga' wood.</p> <p style="margin-left: 40px;">Pine wood</p> <p style="margin-left: 40px;">Mninga (The bleeding) wood.</p>	
	<p>b) Advantages of creosote oil Wood Preservative.</p> <p style="margin-left: 40px;">it has good Penetration in the wood</p> <p style="margin-left: 40px;">it does not easily leach in wood.</p> <p>Disadvantages</p> <p style="margin-left: 40px;">It has strong smell.</p> <p style="margin-left: 40px;">It is hard to apply in thin surfaces</p> <p style="margin-left: 40px;">It has colour, hence deprive wood colour quality</p> <p style="margin-left: 40px;">It is expensive and increase wood flammability</p>	

Extract 1.7.2 illustrates good responses in this question. However, the candidate missed one example of wood to be used in cold dipping method in part (a)(ii) and one advantage of creosote oil as a wood preservative in part (b).

2.2.8 Question 10: Soil and Water Conservation

The question had two parts (a) and (b). The candidates were required to (a) explain why soil erosion is one of the most serious problems in agriculture by giving three reasons and (b) briefly explain three forms in which water erosion occurs.

The question was attempted by 7,716 (95.3%) candidates of whom; 5,320 (68.9%) candidates scored 0 to 1.5 marks; 2,056 (26.7%) candidates scored 2 to 3.5 marks and 340 (4.4%) candidates scored 4 to 5 out of the total 6 marks allocated to the question. Candidates' general performance in this question was average; as 2,396 (31.1%) candidates scored 2 to 6 marks. Figure 1.10 illustrates the scores of the candidates in the question.

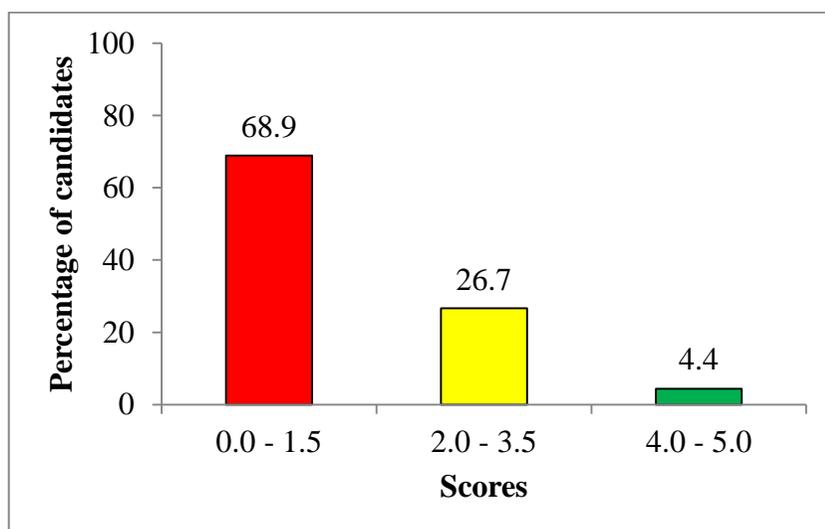


Figure 1.10: *Candidates' Performance in Question 10*

Figure 1.10 indicates average performance of the candidates in the question. Average performance in this question was contributed by partial knowledge on soil erosion acquired by most of the candidates.

Candidates with good performance in this question demonstrated adequate knowledge on soil erosion that enabled them to provide correct responses in all parts of the question. In part (a), the candidates precisely gave reasons that justify soil erosion as the most serious problem in agriculture. The candidates also explained correctly the forms in which water erosion occurs. Extract 1.8.1 exemplifies good responses in the question from one of the candidates.

Extract 1.8.1

1(a)	Soil erosion is the most serious problem because of the following reasons. → It removes the fertile soil leaving out the soil which has no nutrients to support crop growth. → It reduces the size of the land needed for agriculture due to formation of many gullies in the farm. → Sometimes soil erosion removes out crops which are grown in the farm and thus affects the crop production.
1(b)	Sheet erosion. This erosion removes uniformly the layers of the soil without formation of channels. It occurs when a large amount of rainfall down pour with in a soil and thus cause the remove the soil layer uniformly.
	Rill erosion. Water erodes the soil layer through small channels called rills. It occurs after water erosion by sheet become concentrated leading to formation of channels.
	Gully erosion. This water erosion take place on the large channels called gullies. This is because of rill erosion which become concentrated leading to the expanding of the channel.

Extract 1.8.1 is a sample of a good responses from a candidate who in the question. The candidate provided correct responses to all parts, hence demonstrated good mastery of the topic on soil and water conservation.

On the other hand, most of the candidates with poor performance in the question provided incorrect responses in all parts of the question. In part (a), these candidates failed to give correct reasons that as to why soil erosion is the most serious problems in agriculture where they give incorrect responses such as *deforestation, overgrazing, mining activities, monoculture, bush fire and flooding*. Moreover, the majority of the

candidates failed to explain the forms in which water erosion occurs; some of them giving incorrect responses like *irrigation, hydraulic action, by abrasion process, deforestation and air pollution*. This shows that the candidates lacked competence in the mastery of the topic on soil and water conservation as portrayed in extract 1.8.2 from one of the candidates who had poor performance in the question.

Extract 1.8.2

10. (a) - because when using the soil in the way is not good they cause soil erosion.
- because the nutrient which can give the soil fertility is removed so they cause soil erosion
- because people are cutting trees and they destroy the water water sources.
(b) - water erosion is occurs because they don't have a good stream of water.
- water erosion is occurs because many people are cutting trees and they burning the shrubs.
- water erosion is occurs because they don't have the forestry for give use the rain fall.

Extract 1.8.2 indicates candidate's poor responses to the question in which he/she failed to provide correct responses to the whole question, implying lack of subject matter knowledge on soil and water conservation.

2.3 SECTION C: ESSAY TYPE QUESTIONS

2.3.1 Question 11: Crop protection

In this question candidates were required to write an essay examining advantages, disadvantages and safety precautions in using agro - chemicals.

The question was opted by 2,077 (25.6%) candidates of which; 911 (43.9%) candidates scored 0 to 5.5 marks; 959 (46.1%) candidates scored 6 to 12.5

marks and 207 (10%) candidates scored 13 to 18 marks out of the total 20 marks in the question. These statistics show average performance of the candidates since 1,166 (56.1%) candidates scored 6 to 18 marks. Figure 1.11 shows the distribution of the candidates' scores.

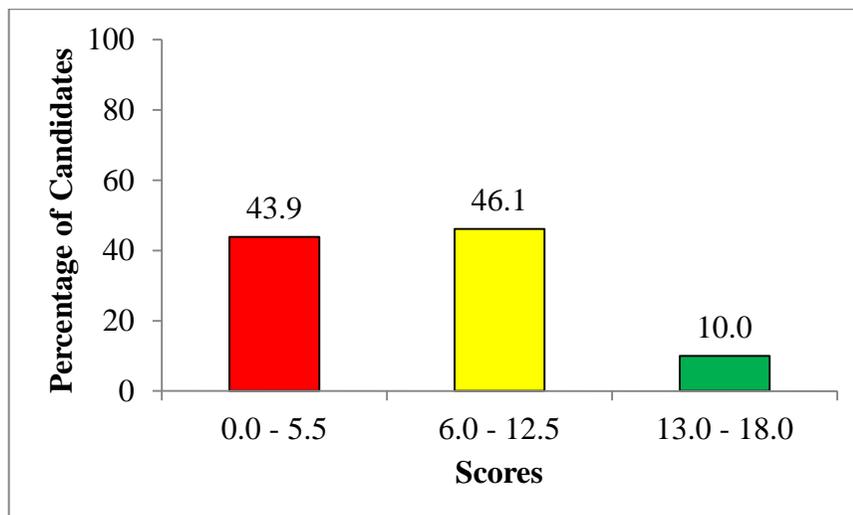


Figure 1.11: *Candidates' Performance in Question 11*

Figure 1.11 shows that average performance of the candidates in this question, was due to lack of full package of knowledge and practical experience in respect to application of agro-chemicals as a chemical method in controlling weeds and pests.

The candidates with good performance in this question met the requirements of the question by providing correct responses. Most of the candidates correctly examined the advantages and disadvantages of using chemicals in controlling weeds and pests. In addition, the candidates outlined correctly the safety precautions to be considered when applying agro - chemicals. However, some of the candidates did not exhaust all the safety precautions required. This implies that the candidates had enough knowledge and practical experience in the use of agro - chemicals in controlling weeds and pests.

Good command of English language facilitated these candidates to clearly explain their points. Moreover, the candidates demonstrated essay organizational skills that enabled them to arrange well the responses into introduction, main body and conclusion with exception of a few candidates

who failed to conclude well their essays. Extract 1.9.1 is a sample of responses from a candidate who did well in the question.

Extract 1.9.1

11.	Weeds and pest are great enemies in crop production. To examine the use of chemical method in controlling weeds and pests by citing on: its eight advantages, five disadvantages and the seven safety precautions in using of agro-chemicals.
	Weeds are the plants which grow in the area where they are not wanted. Pest is any living organism which destroy crops directly or indirectly by producing organism which caused diseases. Chemical method in controlling weed and pest is the method in which chemical substance is used in controlling of pest and weeds. The following are the advantages of chemical method in controlling weeds and pests. discussed as follows:
	It is effective method in controlling of weeds and pest, this is because of the chemical substance when applied in the soil its led to the directly destruction or suppression growth of weeds. than others method.
	It help to control soil structure, the chemical method in controlling weeds and pests help to controlling soil formation or structure due to the chemical substance when its applied in the field it led to threat soil to be maintained on its structure.

11.	<p>It is very easy method to controlling pests and weeds than others methods like cultural weed and pest control, this is because of the most of chemical substance is applied ^{in the soil} with no physical strength and hence be the method that is easy to the controlling of pest and weeds.</p>
	<p>Less labour are required, in the chemical method of controlling weeds and pests less labour are required to spraying chemical substance in the field and hence led to the small number of labour are needed in application of either herbicide or pesticides.</p>
	<p>It take short time to suppressing of weed compared with others method, in chemical method of controlling weed and pest the time taken to apply the chemical is short compared to other method like weeding mulching as the method of cultural weed control, which take long time to be applied in the field.</p>
	<p>Does not expose the soil to agent of soil erosion, this is because of the application of chemical substance in the soil does not disturb the soil and hence reduce occurrence of soil erosion in the field.</p>
	<p>Does not disturb the roots of the crops, the chemical method of controlling pests and weeds does not disturb or destroy the roots of the crops since the chemical is applied on the surface of the soil and not inside the soil.</p>
	<p>It's cheap compared with others methods in term of time, the chemical method of controlling pests and weeds is cheap in term of time compared with others methods in which it takes short to be applied in the soil rather than others method like cultural or Mechanical weed control it's takes long time compared with chemical method of weeds and pests control.</p>

11.	<p>These are the advantages of chemical method of pest and weed control. But the following are the disadvantages of chemical method of weeds and pests control discussed as follows:</p>
	<p>High skills and knowledge is used to apply the herbicide and pesticides, by which the pesticide is used in controlling of pest and herbicides used in controlling of weeds. in which the farmers uses knowledge in order to apply the chemical substance in the field</p>
	<p>Need trained people or person, in chemical method of pest and weeds control, there is the needs of trained person for the application of either herbicide and pesticides in order to controlling of weeds and pests.</p>
	<p>led to the environmental pollution, this is because of the chemical applied in the field can be led to the environmental pollution like water pollution and led to the death of aquatic organisms.</p>
	<p>It is poisonous to man and livestock, the chemical which are applied in the field can be the poisonous to man and livestock as the man eating the plant sprayed with herbicide or pesticide it may led to that man to die.</p>
	<p>It is expensive method interm of money, the sprayed chemical control method is expensive because there is the need of buying chemical substance and also there is the need of buying spraying equipment which increases cost.</p>
	<p>These are the disadvantages of chemical method in controlling weeds and pests. But the following are the seven safety precaution in use of agro-chemicals as discussed as follows:</p>
	<p>1. Read the manufacture instruction and follow them: in safety precaution of using of agro-chemicals the farmer must read the manufacture instruction and follow them in order to have knowledge on how to using correct or specific amount of the chemical substance.</p>

11.	<p>Wearing protective clothes, the protective clothes like overalls and veils and gloves must be wearing in order to be safe when using the herbicide or pesticides. in which the protective clothes is wearing since after being mixing the chemical substance.</p>	
	<p>Keep away from children, the chemical substance should be kept away from children as the children may eat drinking the chemical substance and hence can cause death to that childrens.</p>	
	<p>All spraying equipment must be washed after end of each working time, the spraying equipment must be washed in order to maintain its quality and prevent for them to be damaged easy and in short time.</p>	
	<p>Spraying equipment must not washed in the water sources, water sources like ocean, lakes and rivers. in which when the spraying equipment are washed in the water source it may led to the death of aquatic organism like fish.</p>	
	<p>All chemicals substance should be kept away from food, as when it kept near the food, it may led to that food to be contaminated with chemical substance. and hence when the man eating that food led to the death of that man after eating of food contaminated with chemical substance.</p>	
	<p>All chemicals must be mixing in correct amount or specific rate, the chemical substance like herbicides and pesticide are mixing in correct proportion amount or at specific rate in order to do not cause any negative effects to the crops.</p>	
	<p>Generally, these are the safety precaution of using of agro-chemical like herbicides and pesticides. By which there are another methods that used in controlling of croppest and weeds which are biological control method, cultural control method, physical control method and legislative control method.</p>	

Extract 1.9.1 illustrates responses from a candidate who performed well in the question. The candidate organized well the essay and met the requirement of the question.

However, the candidates who performed poorly in this question failed to provide correct responses in most parts as per question. The candidates provided incorrect responses for the advantages of agro-chemicals such *improve industrial development, increase government revenue, facilitate tourism, source of employment and help to improve social services*. The incorrect responses provided for the disadvantages of agro-chemicals were: *weeds may block source of water, may harbor pests and diseases, increase cost of production, compete with crop plants for space, air and water*. The candidates also incorrectly gave the safety precaution in using agro-chemicals such as; *the soil must be well drained, chemicals must be applied two times, use of mulching, it should be above 18 years in order to prevent occurrence of diseases of people through using chemicals*. This is an indication that the candidates lacked knowledge and skills on the use of agro-chemicals in controlling weeds and pests.

The candidates demonstrated poor essay organizational skills in such a way most of them failed to arrange the essays into introduction, main body and conclusion. The candidates also used poor English language. Extract 1.9.2 is an example of responses from the candidate who had poor performance in the question.

Extract 1.9.2

11	<p>Weeds and pests, weed is the process where by food and crop some weed weeding and pest examine the use of chemical method in controlling weeds and pest by citing on it's eight advantages of weeds</p> <p>Source of food for animal like pigs some weeds are source of food for animal like pigs to development of pig because weed are the food of oral animal keep.</p> <p>provide employment, some weed it provide employment for the people also people of some weed it get the grass to go to market to business of fair money for basic needs for the people some weed are get employment to the people for production</p> <p>source of medicine, some weed are source of medicine for the people of them avoid the pain in the skin people can avoiding the pain in the body also weed help to source of medicine.</p> <p>Some weed provide soil erosion also weeds it provide soil erosion for the land pollution many weed are provide soil erosion because many trees are planting it help to development of trees.</p> <p>source of income, also weeds it source of income for the development of economic activities and other for development of activities for animal and plant for development</p> <p>source of foreign currency, also some weed are source of foreign currency</p>
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11 Some weed are source of food for animal like pig cow also weed control the pig to eat food no food of animal poor development of animal also weed to avoid the famine for animal in Tanzania.

Some weed provide raw material some weed it provide raw material for development of the economic development.

The following disadvantages of precautions in use of agro-chemicals which it should be poison some was they are poison for animal are development for animal field.

They production field, also some weed are production field are development are not to development.

They are crop rotation, some weeds are not stands for crop rotation for development of animal field.

They are poor medicine for the purpose of avoid the death of people because some weeds are precursor of medicine.

Unemployment, many weed are not in the Tanzania poor employment to the people of Tanzania.

poor food for animal also some weeds are not are poor food to animals.

Soil erosion, poor development of people because it caused soil erosion.

finally, some weed are source of food for animal like pigs.

Extract 1.9.2 is a sample of responses from the candidate who failed to organize his/her essay as well as missing all parts of the question. This indicates candidates' lack of knowledge and skills on use of agro-chemicals.

2.3.2 Question 12: Agricultural Marketing

In this question candidates were required to write an essay explaining benefits of marketing cooperatives to farmers and problems facing marketing cooperatives in Tanzania.

The question was opted by 3,807 (47%) candidates. The statistics indicate that 3,092 (81.2%) candidates scored 0 to 5.5 marks; 714 (18.8%) candidates scored 6 to 12.5 marks and only 1 candidate scored 14 marks out of 20 marks in the question. These data illustrate poor performance of candidates in the question. The data show that 715 (18.8%) candidates scored 6 to 14 marks. Distribution of candidates' scores is shown in Figure 1.12.

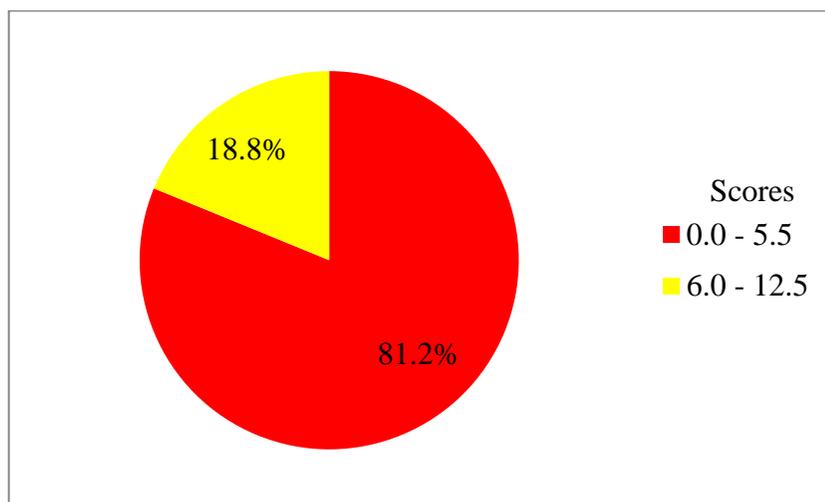


Figure 1.12: *Candidates' Performance in Question 12*

In view of Figure 1.12, the performance of the candidates in the question was poor due to the fact that most of the candidates had inadequate knowledge on marketing cooperatives.

Inadequate knowledge on marketing cooperatives led the candidates with poor performance in the question to provide incorrect responses. Examples of incorrect responses provided by the candidates for the benefits of forming marketing cooperatives to farmers were: *it increase agriculture sector, increase economic activities, keep people busy in the activities and enable farmers to acquire loan from financial institutions*. With respect to the problems facing marketing cooperatives in Tanzania, the candidates gave incorrect responses such as: *it control the farmers, cause change in demand and supply because it can change at any time, source of raw materials for other industries, increase the internal relationship between the farmers and sellers or whole sellers and some farmers can produce crops which are not needed at that time*.

In most of the essays provided by these candidates, the introduction, main body and conclusion parts were not clearly defined. Moreover, in explaining their points, most of the candidates in this group used poor English language whose sentences could not be understood. Extract 1.10.1 represent poor responses in the question.

Extract 1.10.1

12:	<p>farm cooperative Marketing is the place where Demand and Supply was present.</p> <p>The following are the benefits and problem facing Marketing the following are benefits</p> <p>Good quality of demand and supply: This means that Supply and demand was very present in the Marketing</p> <p>A farm will get the new idea this means that to the world to be cooperative the remainder to your Marketing and to - cooperative the idea to farmers.</p> <p>Farmer will get Capital this means that in the process of demand and supply the farmer will get Capital in the Marketing</p> <p>Good farming support this means that in the cooperative Marketing low service was very than. So it is important in the Marketing and to deal to farmer</p> <p>Improvement of science and technology. This means that in the Marketing - cooperatives</p> <p>Good infrastructure this means in the process of Marketing cooperative people will get the infrastructure and remember to use the Marketing cooperative</p> <p>farmer will get employment this means that in the Marketing cooperative farmer to get employment: so this is the benefits the problem as follows</p> <p>Poor Capital investment this means that in the Agriculture - Cooperative Capital was not present.</p>
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<p>poor Science and Technology this - Means that in the Marketing coopera- tive they have poor science and technology example in kg: they have very poor technology</p> <p>Poor skill labour This means in the agricultural Marketing skill labour was very poor because they are not basic</p> <p>poor transport system This Mean s that in the purposes of Marketing transport and Communication was - very poor.</p> <p>poor capital This means in the Marketing capital was very poor so it the one of the problem facing - Agricultural Marketing</p>
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Extract 1.10.1 is a sample of poor responses to the question. The candidate provided incorrect responses in all parts of the question. This indicates that the candidate had inadequate knowledge on cooperatives.

Good performance by candidates who did well in this question was attributed to good mastery of the content. In this question the candidates provided correct benefits of forming marketing cooperatives. They also identified correctly the problems facing marketing cooperatives in Tanzania; though some of them did not come up with all the problems. This is an implication that candidates were knowledgeable enough on cooperatives. Furthermore, candidates in this group used good English language to explain their points in well-organized essays. Good command of the English language was an added advantage to them in explaining their points in well understood sentences. Extract 1.10.2 is an example of responses from a candidate who did well in the question.

Extract 1.10.2

12	<p>Coope ratives - is the pro Voluntary business organization which operate the principal of one man one vote</p> <p>the following are benefits of the cooperatives</p> <p>Reduce middle man profit. So that the farmer can get large share of the Sale price.</p> <p>Improve bargaining power of the farmer for better price. Thus means that through cooperative the farmer can improve bargaining power. Thus lead to the development of the farmer.</p> <p>Make investment storage and processing facilities as possible. This reduce the wastage of the farmer produce in day or per annum.</p> <p>Facilitates smooth marketing for the farmer. Thus mean that through cooperative the farmer can get smooth marketing to sell their product.</p> <p>Farmer can sell their produce in bulk and obtain benefit of produce bulk sale. Thus means that through this cooperative the farmer get opportunities to sell their produce in bulk and get advantage of it.</p> <p>Bulk handling of produce facilitate grading of produce and improve ^{packa} packing standard. Thus mean that through cooperative the farmer can get bulk handling and improvement of packa gaining standard.</p> <p>help in channeling input and creditor to the</p>	
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12:	farmer this means that through cooperative people can create channeling input and creditor to the farmer this may influence efficiency to the farmer.
	are party from benefits but also there is problem as follows:
	Lack of fund to finance the objective this means that through lack of fund the people may fail to face their objective in daily life so the government should be provide funds to people.
	Lack of skilled management personnel: this means that there was lack skilled management personnel so the education should be given to the people.
	Corruption in day to day running projection this means that through corruption people may not developed so may be avoided to the society also in our country.
	Risk and uncertainty in agricultural sector this means that through risk and uncertainty agricultural sector people may fail to develop. So this may avoided in order to develop.
	Lack of track and lorries to transport their product this means that through lack of lorries people may fail to transport their good.
	Price fluctuation in locally and internationally this means that through fall of price fluctuation in locally and internally the farmer cannot developed.
	Generally there are many benefits and problem in agriculture.

Extract 1.10.2 shows a sample of responses from the candidate who performed well in this question. The candidate organized well the essay with correct responses, showing to be knowledgeable enough on marketing cooperatives.

2.3.3 Question 13: Dairy Cattle Production

In this question candidates were required to write an essay (a) describing procedures in preparing the cow for milking and milking process using hand milking system and (b) give seven essentials for clean milk production.

The question was opted by 1,982 (24.5%) candidates whereby; 1,221 (61.6%) candidates scored 0 to 5.5 marks; 707 (35.7%) candidates scored 6 to 12.5 marks and 54 (2.7%) candidates scored 13 to 17 out of the 20 marks allocated to the question. The analysis indicates an average performance of the candidates in the question since, 761 (38.4%) candidates scored 6 to 17 marks. Figure 1.13 illustrates candidates' scores in the question.

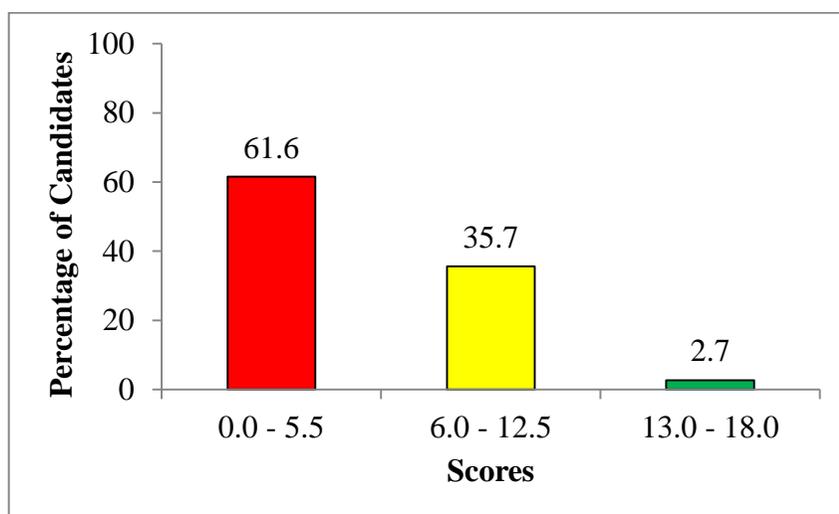


Figure 1.13: *Candidates' Performance in Question 13*

Figure 1.13 shows that 38.4 percent of the candidates scored an average of 30 marks and above. Partial knowledge and lack of enough exposure to field practical skills on hand milking process by most of the candidates made to have average performance.

Most of the candidates who did well in this question had correct responses in both parts. In part (a) of the question the candidates gave correctly the procedures for preparing the cow for milking. However, a few number of students left apart some of the procedures to be followed in the milking process itself. In part (b), most of the candidates correctly gave the essentials for clean milk production. Generally, these candidates showed to possess adequate knowledge and field practical experience on milking process as most of them explained their points in well understood sentences in well-structured essays. Extract 1.11.1 illustrates good responses from a candidate who did well in the question.

Extract 1.11.1

13	milking is the process of removing the milk from the cows who can readily produce milk either by hands or machines	
	The following are procedure involved in preparing cows for milking and milking process using hand milking system.	
	i) Assemble all milking equipments such as buckets, milking cans and tubes.	
	ii) Put the animal in a milking shed and restrain appropriately	
	iii) Wash the udder and teats by using clean warm water mixing with a sanitising agent	
	iv) Dry the udder by using clean towels	
	v) Use the strip cups check for mastitis by drawing a stream of milk from each teat	
	vi) Carry out milking of an animal	
	vii) Use an Dip the milk into anti-mastitis solution	
	viii) Release the cows. Apply the milking jewellery to each teat	
	ix) Release the cows	
	x) weigh and record the milk	
	xi) Wash all equipment used in milking include milking parlour	

13 b)	seven essentials of clean milk production
	- keep animal healthy, free from disease such as tuberculosis, mastitis
	- wash the animal flanks, and udder and region surrounding the udder and teats by using clean warm water
	- Ensure milking shed is clean all the times
	- The milking men and women should be clean preferable, dressed with white over all
	- wash and sterilize all milking equipment and utensils by using detergents and disinfectants
	- After milking, filter the milk and ^{both} cool into the temperature of about 4°C
	- Finally put the milk in a cooling place or deliver it into the collection place.

Extract 1.11.1 represents a sample of responses from a candidate who attempted well the question. The candidate showed to possess adequate knowledge and field exposure on the milking process.

Most of the candidates who performed poorly in this question provided incorrect responses in all parts of the question. Examples of such incorrect responses provided by the candidates for the procedures involved in preparing the cow for milking were: *the age of the cows, the length of the cows, the health of the cows, docile cows*, while the incorrect responses for procedures in the milking process using hand milking system were like: *milk protein milking system, milk fat milking system, milk wastes milking vinegar, milk vitamin milking system, the physiological status of the cow, animal breed, effect of climate and, lactation period* in part (a). Inadequate knowledge and field practical skills on the milking process contributed to poor performance in this question.

In part (b), the candidates failed to give the essentials for clean milk production. The candidates responded incorrectly by giving responses such as: *yoghurt, ghee, ash, butter, cheese* which are products of milk. Most of these candidates possessed poor command of English language and essay organizational skills. Extract 1.11.2 is a sample case for poor responses in the question.

Extract 1.11.2

13

Cows for milking are those cattle used for milk production only and sometimes are called dairy cattle. The following are procedure involved in ~~milking~~ preparing the cows for milking.

⊙

To make the good ration for dairy cattle; this is because the some dairy cattle have the ability to store a lot of milk because use of good ~~rate~~ ration of feeding.

To provide some nutrient which help dairy cattle to produce high amount of milk because some milk have their are a lot of nutrient because it's not only milk some milk have not any nutrient.

The dairy cattle do not walk to high distance to find the feeds; because the use distance it affect the production of milk.

13	<p>It must be able to be kept around the home in order to get a lot of milk because those milk it's important in various duties.</p>
	<p>The dairy cattle must be able to adapt be the environment because the some cattle can adapt in the area which have high temperature and some cattle can adlet adapt in the area which have low temperature so due to those some challenges it cause the dairy cattle to fail in production of milk.</p>
	<p>To check the health of livestock every day because no some ticks can affect the health of livestock so in order to reduce those effect of health the government must be able to pro provide the medicine used to control those ticks apart from those procedures they have essential of clean milk production</p>
	<p>Milk have pr provide protein to human body so the milk are more important and the improve nt of milk dairy cattle are necessary</p>
	<p>The milk contains some mineral nutrient which help human body to grow very fast so their human body without milk it make them to improve lack some nutrient.</p>
	<p>It provide some money to pastoralism some pastoralism can get a lot of money because they make a good system of milk production.</p>
	<p>source of foreign exchange; the milk production is more important because they have some pr foreign exchange with in the country through milk production</p>
13	<p>Source of economic development; The economic development res rise through keeping dairy cattle in high percentage through the those enemies benefit the people must improve the economic activities</p> <p>Therefore the milk are more important because they can make the people to improve certain activities.</p>

Extract 1.11.2 portrays poor responses in the question. The candidate provided incorrect responses in all parts of the question due to inadequate knowledge and practical skills in milking process.

3.0 ANALYSIS OF THE CANDIDATES' PERFORMANCE ON EACH QUESTION IN 034/2 - AGRICULTURAL SCIENCE 2

3.1 SHORT ANSWER QUESTIONS

3.1.1 Question 1: Crop Production

The following specimens were provided to the candidates: A- Sweet pepper, B- Pawpaw Plant, C- Moringa seeds, D- Sesbania plant, E- Couch grass, F- Sweet potato tuber, G- Banana suckers, H- Sweet orange fruit and I- Pineapple fruit. Candidates were required to (a) (i) identify each of the specimens A, B, F, H and I by their botanical names, (ii) give reason why it is not advised to plant more than one variety of specimen A at the same place at a time, (iii) distinguish three types of specimen B by its flowers (iv) state the male: female plant ratio for specimen B to be observed in farming, (v) give reason why it is not recommended to apply Nitrogenous fertilizer for growing of specimen F, (vi) name six commonly grown specimen H varieties in Tanzania, (vii) give four common names of most frequently occurring pests of specimen H and (viii) briefly explain the three types of vegetative propagation materials for specimen, (b) (i) identify each of specimen C, D and E by their botanical name and (ii) give five benefits of specimen D to a farmer and in part (c) (i) explain how many suckers are recommended to be left in a stool of specimen G and (ii) give two names of suckers recommended to be left in a stool of specimen G.

The question was opted by 4,438 (54.9%) candidates of which; 2,971 (66.9%) candidates scored 0 to 7 marks; 1,316 (29.7%) candidates scored 7.5 to 16 marks and only 151 (3.4%) candidates scored 16.5 to 22.5 marks out of the allocated 25 marks in the question. Basing on this statistical data, the general performance of candidates in this question is average since 1,467 (33.1%) candidates scored 7.5 to 22.5 marks. Figure 2.1 represents the candidates' scores in the question.

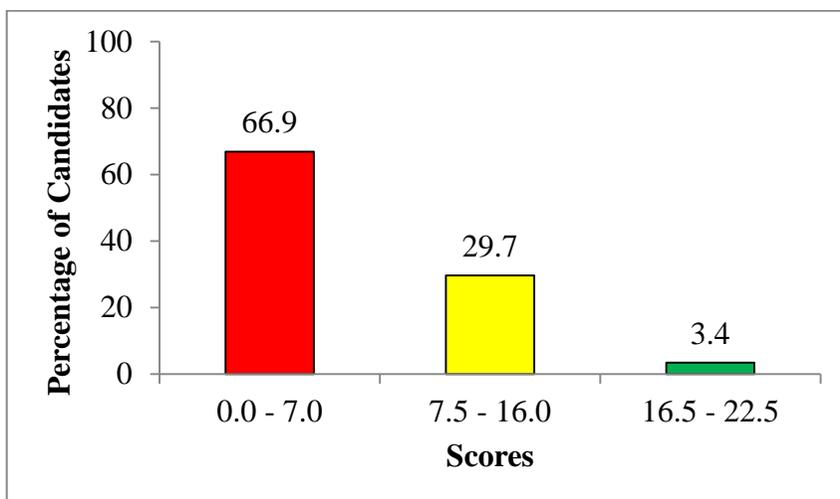


Figure 2.1: *Candidates' Performance in Question 14*

Figure 2.1 shows that 33.1 percent of the candidates scored 30 percent and above. It was observed from the analysis that, most of the candidates did not master all of the topics in the field of crop production that led to such average performance.

The candidates who performed well provided correct responses in many parts except in part (a) (iv), (vi) and (c). Besides of providing correct responses in part (a)(i) and (b)(i), some of the candidates failed to follow the scientific rules of naming organisms. For example, some the candidates wrote Impomeea Batatas instead of Ipomeea batatas, in which they did not follow the rule in writing scientific names. In another example, one candidate wrote Ananas comosus instead of Ananas comosus where in the first name the candidate failed to follow the rule that the two names should be underlined separately. Provision of correct responses by most of the candidates in most parts of the question items signify that the candidates had adequate knowledge and practical skills on the topics from the field of crop production from which the question was drawn.

In part (a) (iv), most of the candidates were unable to state the male: female plant ratio for specimen B (pawpaw plant) by its flowers and gave incorrect responses such as 1:1, 1:2 and 1:3. Similarly in part (a)(vi) the candidates also failed to name six commonly grown varieties of specimen H in Tanzania. Incorrect responses given in this part were like *hybrid*, *short term variety* and *long term variety*. In these parts, the candidates demonstrated

inadequate knowledge on production of pawpaw and varieties of sweet orange.

In addition, these candidates did not manage to give the number of suckers to be left in a stool of specimen G (banana sucker) and names of suckers recommended to be left in a stool of specimen G in part (c)(i) and (c)(ii) respectively. In part (c)(i), most of the candidates recommended either one or two suckers to be left in a stool of specimen G, while in part (c)(ii), the incorrect names provided for suckers recommended to be left in a stool of specimen G included *buds*, *axils* and *bulbils*. This implies that the candidates lacked knowledge and practical skills on reproductive structures in banana. Extract 2.1.1 denotes one of the good responses in the question.

Extract 2.1.1

1	b) (i) specimen A, B, F, H and I are identified by their botanical names as follows:	
	Specimen	Botanical name
	A (sweet pepper)	<u>Capicum annuum.</u>
	B (Paw paw plant)	<u>Carica papaya.</u>
	C (Moringa seeds)	
	F (sweet potato tuber)	<u>Ipomea batatas</u>
	H (Sweet orange fruit)	<u>Citrus sinensis.</u>
	I (Pineapple fruit)	<u>Ananas comosus</u>
	(ii) It is not advised to plant more than one variety of specimen A (sweet pepper) at the same place at a time because sweet pepper tend to cross pollinate and give poor quality yields after cross pollination	
	(iii) specimen B (pawpaw plant) is of three types which are distinguished by its flowers as follows	
	1. Male flowered plants, these have long flowers as compared to female flowered pawpaw plants. They produce male reproductive cells.	
	2. Female flowered plants, these have short flowers as compared to male plants. They produce fruits when planted near male flowered paw paw plants.	
	3. Hermaphrodite flowered paw paw plants, these have both male and female flowers - They can produce fruits by themselves for example solo variety of paw paw plants.	

1 (b)(ii) The following are five benefits of specimen A (Sesban plant) to a farmer;

1. It increases the fertility of the soil by fixing nitrogen through root nodules since it is a legume plant.

2. Its branches and stems can be used as firewood by ~~man~~ a farmer.

3. Its seeds and leaves are used as food by man in some societies.

4. It can be used for feeding livestock since it is a concentrate containing plant due to high level of protein.

5. It can be used in alley cropping hence acting as wind break to some plants like beans, maize and pepper.

(c)(i) Two or three suckers are recommended to be left in a stool of specimen G (Banana)

(ii) Two names of suckers left in a stool of specimen G (Banana) are;

1. Sword suckers

2. Water suckers

1	<p>(iv) The male: female plant ratio for specimen B to be observed in farming is 1:25-30.</p> <p>(v) It is not recommended to apply nitrogen fertilizer for growing specimen F because the nitrogen fertilizer encourages development of the shoot stem system and discourages development of sweet potato tuberos roots.</p> <p>(vi) Six common varieties of specimen H in Tanzania are (a)</p> <p>(vi) Six commonly grown specimen H (Sweet orange fruit) varieties in Tanzania are; (a) Jaffa (b) Valencia (c) Pineapple (d) Mutombo sweet (e) Washington viper (f)</p> <p>(vii) Four common names of most frequently occurring pests of specimen H are (a) Red scales (b) Green scales (c) Citrus aphids (d) Nematodes</p> <p>(viii) The three types of vegetative propagating material(s) for specimen I (pineapple) are;</p>
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1	(b)(ii) The following are five benefits of specimen A (Serban plant) to a farmer;
	1. It increases the fertility of the soil by fixing nitrogen through root nodules since it is a legume plant.
	2. Its branches and stems can be used as firewood by man.
	3. Its seeds and leaves are used as food by man in some societies.
	4. It can be used for feeding livestock since it is a concentrate containing plant due to high level of protein.
	5. It can be used in alley cropping hence acting as wind break to some plants like beans, maize and pepper.
	(c) (i) Two or three suckers are recommended to be left in a stool of specimen G (Banana).
	(ii) Two names of suckers left in a stool of specimen G (Banana) are;
	1. Sword suckers
	2. Water suckers.

Extract 2.1.1 indicates a candidate's good responses. The candidate managed to give correct responses to most parts of the question. However, he/she failed to give correct responses in part (a) (iv) (vi) and (c).

The candidates, who performed poorly in this question, provided incorrect responses to almost all parts of the question. In part (a) (i), most of the candidates failed to give botanical names for the specimens given. For example one candidate wrote *Impomea batetus* with spelling error instead of the correct name *Ipomea batatas* for specimen. In part (a) (ii) the incorrect responses given were like; *each variety grows according to nature of climatic condition and nature of the soil and competition of nutrients with plants, self-pollination* as reasons for why

it is not advised to plant more than one variety of specimens A (sweet pepper). In part (a) (iii), green flower, white flowers and yellow flowerer were examples of incorrect responses provided for the types of specimen B by its flowers. In part (a) (iv), most of the candidates also failed to state the male: female plant ratio for specimen B to be observed in farming and gave responses such as: *male 1 ratio, female 3 ratio, male grow faster than the female plant* for male: female plant ratio to be observed in growing pawpaw plant. Examples of incorrect responses provided for the reason why it is not recommend to apply nitrogen fertilizer for growing specimen F (sweet potatoes tuber) in part (a)(v) were: *lead to formation of more roots than leaves and does not require fertilizer for growth of leaves.*

Six commonly grown varieties of specimen H in Tanzania in part (a) (vi) were incorrectly responded by the candidates with responses such as: *sweet orange, muheza orange, sour orange, red orange, yellow orange and green orange.* In part (a)(vii), some of incorrect responses for the four common names of most frequently occurring pests of specimen H (sweet orange fruit) given by the candidates were like: *nematodes, cutworms, leaf minor, orange weevil, mealy bug, fungus fleas and bacteria.* Incorrect responses such as *suckers, rhizomes* and *stolons* were given by the candidates as the types of vegetative propagating materials for specimen I in part (a) (viii).

Furthermore, in part (b)(i), most of the candidates responded incorrectly for the identification of the given specimens and where the candidates managed to write the correct botanical names for the specimens, they failed to follow the rules of nomenclature. In part (b) (ii) these candidates did not manage to give benefits of specimen D to a farmer and provided responses such as *prevents soil erosion and source of manure.* Number of suckers recommended to be left in a stool of specimen G and two names of suckers recommended to be left in a stool of specimen G in part (c) (i) and (ii) respectively were likewise incorrectly responded by majority of the candidates. Incorrect responses provided by candidates in almost all parts of the question justify inadequate knowledge and lack of practical skills on the production of various crops involved in the question. Extract 2.1.2 depicts one of the poor responses in the question.

Extract 2.1.2

1. (i) To identify each of specimens A, B, C, D, E, F, G, H, I	
Specimen A is	
This is very growing in the farmer to the suitable in the land to in the suitable in the root.	
Specimen B Paw paw	
Specimen C is Moringe Seeds	
Specimen D is Sejutut	
Specimen E is Nut grass.	
Specimen F is Sweet potatoes	
Specimen G is flower plant	
Specimen H is fruit orange	
Specimen I is.	
ii): Because it is very good the land purpose in the growing to production.	
(iii) To distinguish three types of specimen B by its flower.	
(a): Annual Paw paw	
(b): Moringa plus paw	
(c): Aina Aina paw paw.	

	<p>iv): To state the male:female plant ratio for specimen B to be observed in farming. male plant of specimen B is <u>stamens</u>. female plant of specimen B is <u>pistil</u>.</p>
	<p>v): It produces in the animal feeding in the grass to the growing.</p>
	<p>vi): To name six common grown specimen H varieties in Tanzania. i): <u>vitamin tropical</u> ii): <u>Land</u> iii): <u>area Topographical</u> iv): <u>Climate</u> v): <u>Water (rain fall)</u> vi): <u>Temperature</u></p>
	<p>vii): To give four common names of most frequently occurring parts of specimen H. a/. <u>br-insecta</u>. b/. <u>Amoeba</u>. c/. <u>Kingdom</u>. d/. <u>fungi</u>.</p>
	<p>B): (i) To identify each of specimen C, D and E by their botanical name. specimen C is <u>MOLINGE SEEDS</u> specimen D is specimen E is <u>NUG GLASS</u></p>
1.	<p>b(ii): five benefits of specimen D to a farmer? (i): <u>It grow in the farmer</u> (ii): <u>It help climate condition</u> (iii): <u>it help temperature of the farmer.</u> (iv): <u>Help to good production</u> (v): <u>provide the good product in the farmer.</u></p>

Extract 2.1.2 is a sample of responses from a candidate who performed poorly in the question. The candidate had incorrect responses in all parts of the question; justifying lack of knowledge and practical skills on production of various crops.

3.1.2 Question 2: Livestock Production

In this question, the candidates were provided with the following specimen J- Poultry egg, K-Strip cup, L-Fresh milk, M-Ticks, N- Branding iron, O-Bull nose ring and P-Guatemala grass. Candidates were required to (a) (i) briefly describe the composition and functions of shell in the specimen J, (ii) name in which part of reproduction system of a bird where shell part is added and (iii) state five composition of newly laid specimen J, (b) (i) suggest two materials and five equipment apart from specimen K which are to be used during harvesting of specimen L, (ii) briefly describe the procedure for harvesting specimen L by using hands. (c), state six harmful effects of specimen M to farm animals, (d) (i) examine the procedures for using specimen N in animal management practices, (ii) name other three methods which are used for the same purpose as specimen N, (iii) give the name of specimen O, (iv) explain how specimen O is used for its function, (v) identify specimen P by its botanical name and (vi) propose two other materials as specimen P that are suitable for planting in pasture by giving their common names.

The question was opted by 5,232 (64.8%) candidates whereby 2,475 (47.3%) candidates scored 0 to 7 marks; 2,715 (51.9%) candidates scored 7.5 to 16 marks and 42 (0.8%) candidates scored 16.5 to 19.5 marks of the total 25 marks in the question. The candidates' general performance in the question was average due to the fact that 2,757 (52.7%) candidates scored 7.5 to 19.5 marks as indicated in Figure 2.2.

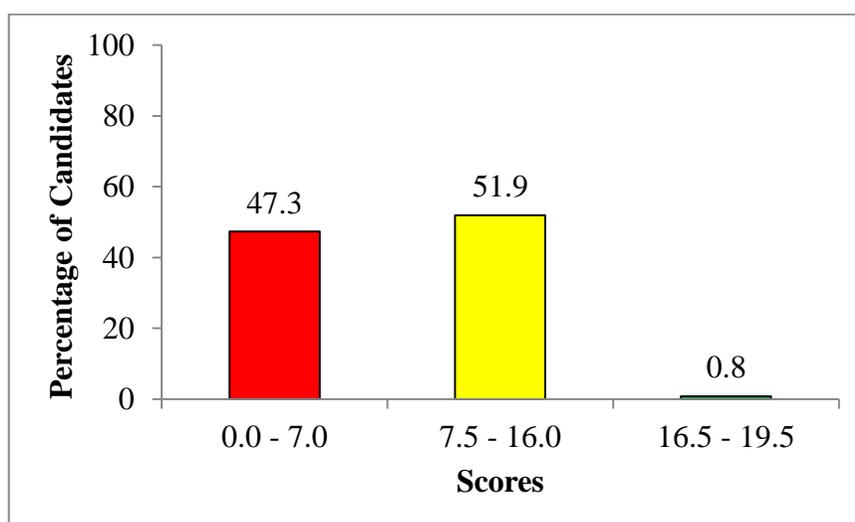


Figure 2.2: Candidates' Performance in Question 15

Figure 2.2 advocates average performance of candidates in the question whereby 52.7 percent of candidates scored 30 percent and above. Various topics on the field of livestock production examined in the question had different performance by the candidates. This observation was found to contribute to average performance of the candidates.

Most of the candidates who had good performance gave correct responses in almost all parts of the question except part (a)(ii) and (iii). Provision of correct responses to most parts of the question items identified indicates that the candidates were knowledgeable enough and had practical experience on milking process, animal parasites, animal identification and pastures.

However, these candidates, had weakness in responding correctly to part (a)(ii) and (a)(iii) of the question. In Part (a)(ii) most of the candidates failed to name the part of reproductive system in which the shell part of specimen J is added. Some of the incorrect responses provided by candidates in this part were *stomach, ovary, vent and reproductive organ*. In part (a)(iii), examples of incorrect responses for composition of newly laid specimen J provided were such as: *chalaza, egg yolk, albumin and egg shell*. This indicates that the candidates had partial knowledge on egg as livestock product. Extract 2.2.1 is an example of good responses

Extract 2.2.1

<p>2. a) i) composition of the shell of specimen J ^(poultry egg) that it contains:-</p> <ul style="list-style-type: none"> - large amount of calcium carbonate. - Calcium phosphate - Very little amount of magnesium salt and protein. <p><u>Function:</u> It hold the content of egg in place or position</p> <p>ii) Specimen J shell is added in the <u>uterus</u></p> <p>iii) Five compositions of newly laid specimen J.</p> <ul style="list-style-type: none"> 1. Vitamins 2. Protein 3. Lipids 4. Minerals 5. Little amount of water and carbohydrate.
--

2. b) i) The two materials and five equipment used apart from specimen 1 (Strip cup) used during harvesting of specimen 2 (Fresh milk) are:

Materials:

- i) Disinfectants before and after milking
- ii) Milk jelly
- iii) Clean towel.
- iv) Clean muslin or piece of cloth for straining.

Equipments

- i) Milk bucket
- ii) Stool for sitting during milking
- iii) Weighing balance
- iv) Clean towel for drying the udder
- v) Clean muslin or piece of cloth for straining milk.

ii) The following are procedures used during hand milking for harvesting of specimen 2:

1. Preparation of the equipments and tools

All necessary tools are assembled and are like, milk bucket, towel which are clean, strainer, stool, milk jelly, warm water, disinfectants and

2. Preparation of the cow. The cow is prepared and when is not docile the hind legs are tied to avoid kicking.

2	b7 ii	3. The cow's udder is washed and by warm water and dried by using a clean and dry towel after milker has disinfected his hand.
		4. The milking jelly is applied to soften the teat to avoid injury during milking.
		5. The cow is milked until almost all milk is over from the udder, and it should be avoided to leave milk in the udder.
		5. The small amount of milk is drawn from the udder and into a strip cup to test mastitis. If there is appearance of white clots or blood clots, the cow should not be milked.
		6. If the cow is free from mastitis, milk the cow until all milk is almost over, weigh the milk after straining or filtering it and store it in a cool and dry place almost at 4°C.
		7. Clean and disinfect the equipments used, hands and then shift to the other cow for milking.
	c7	Harmful effects of specimen M (Tick):
	i)	It leads to the spread of diseases like East coast fever, Heartwater and anaplasmosis.
	ii)	It leads to anaemia to animals as it sucks blood.
	iii)	It causes restlessness of the animal as it sucks blood.
	iv)	It leads to poor quality skin of animal as they puncture the skin.
	v)	They create openings where pathogens enter the animal.
	vi)	They lower production of the farm animals.

Extract 2.2.1 is a sample of responses from a candidate who performed well. The candidate managed to provide correct responses to most parts of the question except some points in (a) (i) (b) (ii).

Candidates who performed poorly in this question provided incorrect responses in many parts of the question except in parts (a)(i), and (b)(ii) where they managed to get correct some few points.

In part (a)(ii), the majority of these candidates failed to name the part in the reproductive system of the bird where the shell part of specimen J is added. Most of the candidates mixed the parts and named parts of the digestive

system instead of the reproductive system of the bird (uterus) responsible for adding shell part to the specimen J. In part (a)(iii), the candidates failed to state the composition of newly laid specimen J and gave responses such as: *it is used in production of protein, it is used to provide vitamin, source of energy*. In part (a)(iii) the candidates did not understand the requirement of the question, hence provided responses that were not related to the question asked.

In part (b)(ii), most of the candidates did not manage to describe the procedure for harvesting specimen L using hand but outlined composition and importance of the specimen. This gives the picture that the candidates lacked knowledge and field practical skills on the milking process.

The candidates also failed to examine the procedures for using specimen N in animal management practice and were unable to name other methods which are used for the same purpose as specimen N in part (d)(i) and (d)(ii) respectively. Failure to attempt these parts correctly means that the candidates had inadequate knowledge and practical experience in animal identification.

Likewise, the candidates failed to identify specimen O and its function in part (d)(iii) and part (d)(iv) respectively. Some of the incorrect identifications of specimen O were *hook* and *pin*, in which some of the candidates explained it as *used for making animal cool and for decoration*. In this part the candidates were observed to possess inadequate knowledge and practical skills on animal management practices.

The candidates failed to give the botanical name of specimen P and other materials similar to specimen P that are suitable for planting in pasture in part (d) (v) and (vi) respectively. In part (d) (v), the majority of the candidates identified the specimen by its common name instead of its botanical name. This signifies that the candidates possessed inadequate knowledge on pasture and their botanical names. Extract 2.2.2 shows an example of poor responses in the question from one of the candidate.

Extract 2.2.2

2	
a	
i/	pottery egg. It help to source of porten in human being
ii/	Source of porten Good of food
iii/	
a	source of food
B	Source of porten protein
c	Source of income
b	Specimen k - strip cup
i/	Chuji of mille fresh
ii/	It help in water
iii/	It help in materials of maize plant
iv/	It help in chain
v/	
b	Specimen L - fresh milk
i/	It help to source of porten.
ii/	It help to file of animal
c	
i/	effect of maize
d	Specimen N - Brading ion
i	It goal uguza in ngoi in alamu of goat.
ii/	
iii/	Specimen O in Bull role ring
iv/	It used of saw in banding ion
v/	Specimen P maize plant
vi/	source of food Source of food of animal

Extract 2.2.2 is an illustration of a sample of poor responses. The candidate attempted poorly in all parts of the question signifying inadequate knowledge and practical skills on the content on the question.

3.1.3 Agro-Mechanics and Soil Science

The candidates were provided with the following specimens: Q-Ball pane hammer, R-Rasp file, S-wood float, T-Spirit level, U-Anvil, V-Barbed wire, W-Cassava root tuber, X-Centro plant, Y-Farm yard manure. Candidates were required to (a) (i) identify the specimens Q, R, S, T and U, (ii) briefly explain the function of each of the specimens Q, R, S, T and U, (iii) state the process in which specimen U is used in workshop technology (iv) give the function of mortar with which specimen S is used for, (b) (i) identify the specimen V, (ii) name other three types of material that are used for the same purpose as specimen V, (iii) State the use of specimen V, (iv) give reason why specimen V not recommended in sheep houses, (c) (i) identify specimens W and X by their scientific name, (ii) state where does the specimen W absorb its nutrients in the soil profile, (iii) briefly explain what will happen if specimen W is not used with a shallow root system crop in the farm, (iv) state the role of specimen X in improving soil fertility and productivity and (v) elaborate two types of biological nitrogen fixation for specimen X and (d) briefly explain two considerations you will take in storage and handling of specimen Y.

The question was opted by 6,478 (80.2%) candidates of which 2,318 (35.8%) candidates scored 0 to 7 marks; 4,106 (63.2%) candidates scored 7.5 to 16 marks and 54 (1%) candidates scored 16.5 to 22 marks out of the 25 marks allocated in the question. Generally, these data indicate average performance of the candidates in the question as 4,160 (64.2%) candidates scored 16.5 to 22 marks. Figure 2.3 indicates distribution of candidates' scores in the question.

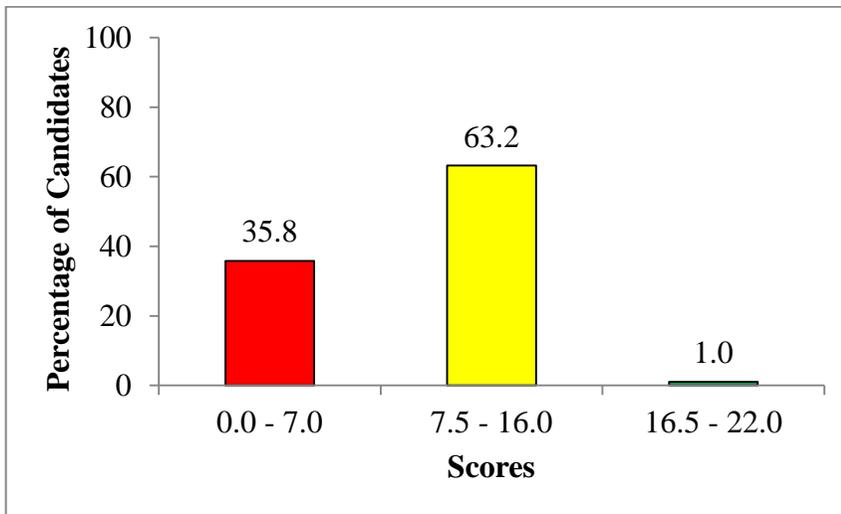


Figure 2.3: *Candidates' Performance in Question 16*

Figure 2.3 signifies average performance of the candidates in the question with 64.2 percent of the candidates scored 30 percent and above. In the analysis of candidates' responses, it was observed that most of the candidates did not do well in the question items on the topics from the field on soil science. The candidates had good performance on agro-mechanics, the fact that led to average performance of the candidates in the question.

In the group of the candidates who performed well in the question, most parts of the question were correctly attempted by these candidates. Candidates did well in parts (a) (i), (ii), (iii) (v), (b) (i), (iii), (iv), (c) (i), (iii) (iv) and (d). However, most of them responded incorrectly in parts (b) (ii), (c) (ii) and (v). Correct responses provided by the candidates in the named parts suggest that they had ample knowledge and practical experience on workshop and masonry tools and soil fertility.

On the other hand, most of the candidates did not do well in part (b) (ii) as they failed to name other three types of materials that are used for the same purpose as specimen P (Guatemala grass). Examples of incorrect responses in this part were: *live fence, wood fence, tree fence and block fence* signifying inadequate knowledge on farm structures in part of candidates.

Moreover, the candidates also failed to identify a place where specimen W absorbs its nutrients in the soil profile in part (ii). *O-horizon, A-horizon, soil profile and clay soil* were some of the incorrect responses provided by

candidates in part (ii). In part (c)(v), the incorrect responses provided by these candidates for two types of biological nitrogen fixation for specimen X were such as *microbial fixation*, *decomposition fixation*, *nitrification fixation*, *nitrogenation and*, *hydrolysis and reabsorption*. This suggests that the candidates had inadequate knowledge on plant nutrition. Extract 2.3.1 is an example of good response for a candidate who performed well in the question.

Extract 2.3.1

3(a) (i)	- Specimen Q is <u>Ball pein hammer</u>
	- Specimen R is <u>Rasp file</u>
	- Specimen S is <u>Wood float</u>
	- Specimen T is <u>Spirit level</u>
	- Specimen U is <u>Anvil</u>
3(a) (ii)	<u>The function of each specimen Q, R, S, T, U:</u>
	<u>Specimen Q (Ball pein hammer)</u>
	• - It is used for shaping metal
	<u>specimen R (Rasp file)</u>
	- It is used for smoothing rough surface of wood
	<u>Specimen S (Wood float)</u>
	• It is used in levelling finishing concrete
	<u>Specimen T (Spirit level)</u>
	It is used in placing bricks in straight line vertically or horizontally.
	<u>Specimen U (Anvil)</u>
	It is used for supporting piece of metal during forging process.
3(a) (iii)	<u>Specimen U (Anvil) is used in <u>forging</u>.</u>
	<u>Hammering or</u>
	<u>Forging is the the process by which heated metal is shaped in required shape by hammering it.</u>

3(a) (iv) Function of mortar is used in sticking together bricks. Mortar is used to stick bricks during masonry activities.

3(b) (i) Specimen v is Barbed wire

- (ii) ~~Electric~~ ^{plant} wire
- Woven wire
- Gal wire
- Plants

(iii) Specimen v is used in fencing farm.

The specimen (v) Barbed wire is used for construction of fences for restricting / controlling animal and human movement.

(iv) Specimen (v) (Barbed wire) not recommended in sheep because;

- removes wool of the sheep when tried to pass.
- Barbed wire can affect sheep skin.

3(c) (i) - Specimen w (cassava root tuber) is Manihot esculenta

- Specimen x (Sesban) is Sesbania sesban

- Specimen x (Centro) is Centrosema pubescens

3(C) (ii) The specimen W absorbs its nutrients from A-horizon ~~O-horizon~~ and A-horizon

3(C) (ii) The specimen W (Cassava root tuber) absorb its nutrients from A-horizon of the soil profile

(iii) If specimen W is not planted with shallow root crops, the following will happen.

- The nutrient will be not utilized well.

Shallow root crops absorb nutrient from O-horizon. If not there the nutrient will be lost.

- The shallow root crops increase soil nutrient if legume is included, their root do fixation will take place.

- The shallow root crops need nitrogen for their growth but specimen W does not need high amount of nitrogen.

3(C) (iv) Specimen X is leguminous plant therefore play the role of fixing nitrogen in the soil.

This increase the the productivity of the soil.

3c(v) -	Symbiotic nitrogen fixation.	
	- Symbiotic nitrogen fixation.	
	(v) - Symbiotic nitrogen fixation is done by bacteria which is found in the nodules of leguminous plant.	
	- Symbiotic nitrogen fixation is occurring naturally found from atmosphere.	
3(d)	Specimen Y (Farm yard manure) is storage water or Rain Proof for the following purpose.	
	(i) In order to prevent leaching if at the rain occurs.	
	Farm yard manure undergoes leaching if it stored poorly.	
	(ii) Another is that should be away from sunlight. This helps to store nutrient because sunlight cause volatilization, Nitrate evaporate hence the loss of nitrogen. There fore should be stored under which is proofed well.	

Extract 2.3.1 represents candidate's good responses to the question. The candidate responded well to almost all parts of the question, except in part (b)(ii) (c) (ii) and (v).

Contrarily, the candidates who performed poorly did not do well in most of the question parts. Most of the candidates attempted incorrectly in parts (a) (i) (ii) (iii) (iv), (b) (ii), (c) (ii) and (v) and part (d). However, most of the candidates had correct responses in part (b) (i) (c) (i), (iii) and (iv). In part (a)(i) and (ii) a number of these candidates failed to identify and give the functions of the named specimens respectively. Likewise in part (a)(iii), the candidates did not manage to name the process in which specimen U is used. In part (a) (iv), the majority of the candidates were unable to explain the function of mortar with which specimen S (Wood float) is used for by providing incorrect responses like: *construction the wood or recommended place to be flat and used for construction the building or soil in the area*. This indicates that the candidates possessed inadequate knowledge and field practical skills on workshop tools and masonry work.

In part (b) (ii), the candidates failed to name the other three types of materials which are used for the same purpose as specimen V. Examples of incorrect responses in part (b) (ii) were: *netting wires, electrical wires and nail wire*, implying that the candidates lacked knowledge on farm structures.

In part (c) (ii), most of these candidates did not manage to state where the cassava root tuber absorb the nutrients in the soil profile by providing incorrect responses like: *absorb its nutrients in the soil profile to the root system, absorb in the profile O and penetrate the roots to the soil*. In part (c)(v), majority of candidates were unable to provide correct responses for types of biological nitrogen fixation for specimen X. Examples of incorrect responses in part (c) (ii) were: *oxygen, nitrogen, nitrification, denitrification*, as types of biological nitrogen fixation for specimen X. In part (d) of the question, most of candidates were unable to give correct responses for the considerations that may be taken in storage and handling of specimen Y and gave responses such as: *farm manure increase soil fertility, store in clean area and dry surface, store in the house of animal, in the sun in order to allow composition speed, there should be water to allow microbial activities and store in plastic bags*. The incorrect responses provided by the candidates in these parts demonstrate lack of knowledge on soil fertility by the candidates. Extract 2.3.2 denotes poor responses from one of the candidates.

Extract 2.3.2

3.	a/1/ Identify specimens Q, R, S, T and U Specimen Q is Screw type side Specimen R is Specimen S is Specimen T is Specimen U is
	ii/ The following are uses of specimen
	iii/ What is the function of mortar used in each which specimen S is used Specimen S is used to set to set the house.
	b/ Identify specimen V. Specimen V is
	c/ Identify specimen W and X Specimen W is Cassava. Specimen X is
	ii/ The following are reasons why specimen W absorb its nutrients in the soil profile? - This is because the specimen is grow at high temperature and low rainfall.

3.	d/ ii/ Account for effect of solubility of specimen Z in farming i/ To remove weeds in the farm. ii/ Growing of plant iii/ To kill the disease which face plant
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Extract 2.3.2 is a representative sample of poor responses in the question. The candidate had all parts of the question incorrectly attempted, showing lack of knowledge and practical skills on the subject matter.

4.0 PERFORMANCE OF THE CANDIDATES ON EACH TOPIC/FIELD

This section presents performance of the candidates in different topics/fields. The performance in different topics/fields in 2018 CSEE is shown in Appendix I whereby, green colour portrays topics with good performance; yellow colour indicates topics with average performance, while red colour denotes topics in which the candidates performed poorly.

The analysis depicts that, candidates had good performance in the topics on surveying (76.5%) and topics in a Multiple Choice questions (70.2%). The topic on Surveying from the field of Agro-Mechanics has its performance increased to good in 2018 CSEE compared to the topic on Farm Power from the same field in 2017 CSEE, which had poor performance. Multiple choice questions in 2018 CSEE have decreased their performance compared to performance in 2017 CSEE, though the performance remains good.

Candidates performed averagely in topics/fields on Agricultural Mechanics and Soil Science (64.2%), Livestock Production (52.7%), Dairy Cattle Production (38.4%), Crop Production (33.1%), Crop Protection (31.25% and Soil and Water Conservation (31.1%). The performance of the field on Agro-Mechanics and Soil Science was average in 2018 CSEE and 2017 CSEE, although it has increased in 2018 CSEE while the field on Livestock Production and Crop Production have increased their performance from poor in 2017 CSEE to average in 2018 CSEE. The topic on Crop Protection also has its performance increased to average in 2018 CSEE from poor performance in 2017 CSEE.

However, weak performance of the candidates was observed in the topics on Animal Feeds and Feeding (23.1%), Agricultural Extension (21.6%), Agricultural Marketing (18.8%), Factors Affecting Livestock production in Matching Items question (17.9%), Factors of Production (11.8%), Soil Formation (11.4%) and Forestry Crops Production (7.1%).

The topics on Animal Feeds and Feeding remained with weak performance in 2018 CSEE as it was in the topic of Poultry Farming in 2017 CSEE; both topics derived from the field of Livestock Production. The topic on Agricultural Extension also maintained its weak performance in both years. Likewise, the Matching Items questions had weak performance in both 2018 CSEE and 2017 CSEE. Similarly, the performance on the topic of Factors of Production remained weak in 2018 CSEE as it was in the topic of Agricultural Prices in 2017 CSEE; both topics from the field of Farming Business Economics.

However, the topic on Soil Formation has decreased its performance from good in 2017 CSEE to weak in 2018 CSEE, while the topics on Forestry Crops Production and Bee - keeping and Fish Farming both from the field of Natural Resources have their performance decreased to average in 2017 CSEE

to weak in 2018 CSEE. Comparison of candidates' performance in different topics/fields in 2018 CSEE and 2017 CSEE is summarized in Appendix II.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The general performance in this year's examination was average. It was found from the analysis that candidates who did well in the examination possess good mastery of the subject matter knowledge in different topics. The candidates also had enough field practical skills on different topics and good command of the English language that enabled them to meet the demands of the questions.

However, several reasons have contributed in candidates' poor performance in the examination. These reasons include; lack of enough exposure to practical. Most of the candidates did not perform well in practical examination due to their inadequate field practical skills. Possession of adequate practical skills could have been an added advantage in responding correctly to some of the questions in the theory examination which needed practical exposure, since students learn better by doing.

Candidates' poor understanding of different topics was also observed to contribute to candidates' poor performance in the examination. This was evident in the case where the candidates provided incorrect responses in most parts of the questions. Inadequate subject matter knowledge also caused candidates to provide either partial correct responses or failing to respond to the question. Moreover, failure to understand the tasks and demands of questions led candidates to provide incorrect responses and in some cases provided responses that were not related to the questions asked. Most of the candidates also failed to address properly the action verbs used in the questions. This was observed in the action verbs that demanded candidates to give detailed information and instead they responded by giving little information by either mentioning or outlining. The problem of lack of English language proficiency by most of the candidates resulted into candidates' failure in elaborating their points and sometimes writing sentences which could not be understood.

5.2 Recommendations

The findings in this report revealed general average performance of the candidates with some of the candidates performing well and others doing poorly in the examination. The following are recommended so as to improve the performance in the future examinations.

- (i) Teachers and students should adapt and use Information and Communication Technology (ICT) in teaching and learning process to enhance acquisition of knowledge.
- (ii) Teachers to make effective use of subject enabling infrastructures in conducting practical sessions as students learn better by doing.
- (iii) Teachers should incorporate resource persons in different subject fields to teach various topics.
- (iv) Teachers through assessment and evaluation should identify slow learners and offer remedial classes to them.
- (v) Teachers to set standard tests and examinations to acquaint students with different types of questions in examinations.
- (vi) Teachers should use appropriate teaching strategies and techniques according to the topic content and type of the learner.
- (vii) English language should be made to be an official medium of communication so as to make students proficient in the language.
- (viii) Candidates should carefully read the examination questions before attempting them in order understand their demands.

The findings and recommendations in this report based on the analysis of candidates' responses to the examination questions. There is an opportunity for the educationalists and researchers to find out other factors that contribute to candidates' poor performance in their examination so as to improve future performance.

Appendix I

Performance of the candidates on topics/fields in a CSEE 2018

S/N	Topic	Percentage of Candidates who scored the average of 30% and above	Comments
1.	Surveying	76.5	Good
2.	Multiple Choice	70.2	Good
3.	Agricultural Mechanics and Soil Science -2	64.2	Average
4.	Livestock Production-2	52.7	Average
5.	Dairy Cattle Production	38.4	Average
6.	Crop Production-2	33.1	Average
7.	Crop Protection	31.25	Average
8.	Soil and Water Conservation	31.1	Average
9.	Animal Feeds and Feeding	23.1	Weak
10.	Agricultural Extensions	21.6	Weak
11.	Agricultural Marketing	18.8	Weak
12.	Matching Items	17.9	Weak
13.	Factors of Production	11.8	Weak
14.	Soil Formation	11.4	Weak
15.	Forestry Crop Production	7.1	Weak

Appendix II

Comparison of Candidates' Performance on topics/fields in CSEE 2017 and 2018

S/N	Topic/fields	2017	Topic/fields	2018
		Percentage of Candidates who scored the average of 30% and above		Percentage of Candidates who scored the average of 35% and above
1.	Multiple-choice Items Question (Classification of Crops Grown in Tanzania, Principles of Livestock Production, Agricultural Extension, Agricultural Prices, Farm Power, Soil Constituents and Physical Properties of the Soil, Bee-keeping, Environmental Degradation, Factors of Production and Pig Production)	78.72	Multiple-choice Items Question (Farm Records and Accounts, Farm Workshop, Factors Affecting Crop Production, Soil Fertility and Productivity, Agricultural Extension, Sheep Farming, Agroforestry, Agricultural Development in Tanzania, Soil and Water Conservation, Annual Field Crop Production)	70.2
2.	Soil Formation	70.66	Soil Formation	11.4
3.	Soil Science and Agro-Mechanics (practical question)	51.54	Soil Science and Agro-Mechanics (practical question)	64.2
4.	Beekeeping and Fish Farming (Natural Resources)	49.46	Forestry Crop Production (Natural Resources)	7.1
5.	Environmental Degradation	28.72		

S/N	Topic/fields	2017	Topic/fields	2018
		Percentage of Candidates who scored the average of 30% and above		Percentage of Candidates who scored the average of 35% and above
6.	Crop Protection	17.75	Crop Protection	31.25
7.	Agricultural Prices (Farming Business Economics)	16.31	Factors of Production (Farming Business Economics)	11.8
8.	Crop Production (practical question)	15.89	Crop Production (practical question)	33.1
9.	Livestock Production (practical question)	14.02	Livestock Production (practical question)	52.7
10.	Poultry Farming (Livestock Production)	13.19	Animal Feeds and Feeding (Livestock Production)	23.1
11.	Farm Power (Agricultural Mechanics)	11.54	Surveying (Agricultural Mechanics)	76.5
12.	Matching Items question (Plant Nutrition)	9.20	Matching Items Question (Factors Affecting Livestock Production)	17.9
13.	Agricultural Extension	8.31	Agricultural Extension	21.6
14.			Dairy Cattle Production	38.4
15.			Soil and Water Conservation	31.1
16.			Agricultural Marketing	18.8

