

It is important that you do your own work and use your own words. Copying and pasting from on-line sources or soft-copies of other resources (hand-outs, e-books, lectures, etc.), or from other student's work, will result in serious loss of marks. For questions involving calculations, show your work.

Question 1

Four pigs in a pen were weighed over a period of three weeks, with the results below. The pen was given the same amount of feed every day for a week, as indicated in the table below.

Week	Date/Pig number	Weight of pigs					feed given daily, kg	No of days	Total feed for week, kg
		334	335	336	338	Total weight of pigs, kg			
1	Week begin 12 April	9	11	12	13.5		3	7	
2	Week begin 19 April	10.5	12.5	14	15.5		3.5	7	24.5
3	Week begin 26 April	12	14	17	18		4	7	
	Week begin 3 May	4	16	26	20		-----	-	-----

a. Complete the table below.

(12 marks)

Week	Begin Date	End Date	Total liveweight gain, kg	Total Feed used for the week, kg	Feed Conversion, $\text{kg-feed} : \text{kg-lwg}$
1	12 Apr	19 Apr			
2	19 Apr	26 Apr		24.5	
3	26 Apr	3 May			
Total for the period 12 Apr to 3 May					

lwg = liveweight gain

b. Compare the feed conversion rate of the pigs in Week 3 with what is considered to be a good feed conversion for pigs of that size. If there is a large difference, give the most likely reason/s. (4 marks)

c. Maize costs \$15 per 50 kg.

Pig grower-finisher concentrate costs \$34 per 50 kg.

Brendon has a pen of pigs that weigh an average of 50 kg each (liveweight). He wants to feed them until they weigh 64 kg each.

He estimates that the dressing percentage will be 70%. He can sell the meat to a butcher for \$2.25 per kg.

What advice will you give him?

(5 marks)

d. A sow was bred at Africa University on 22 Jan 2021. Give the expected date (3 marks)

Activity	Date
i. when it will farrow	
ii. When the piglets should be weaned at Africa University	
iii. When the sow should come on heat again after weaning if it is in good condition	

e. A gilt farrowed 6 piglets. Give three possible strategies a farmer could use to improve this number when breeding other gilts. (3 marks)

f. Discuss Fall Army worm in maize, including its life cycle, the damage it does, signs of its presence, and control. (10 marks)

g. Discuss nitrogen application in maize. (11 marks)

h. Describe the Practical Work Experience that YOU did *this* semester and explain how it will help you in your career after graduation. (12 marks)

End of Question 1

Question 2

a. A sow was bred at Africa University on 15 April 2021. Give the expected date (3 marks)

Activity	Date
i. when it will farrow	
ii. When the piglets should be weaned at Africa University	
iii. When the sow should come on heat again after weaning if it is in good condition	

b. RraKolobe has a farm with 23 sows. For sows, *after* the first litter, the average litter size at weaning is 7.1 piglets per sow. Compare this average with what is considered acceptable, and suggest ways to improve it. (6 marks)

c. Four pigs in a pen were weighed over a period of three weeks, with the results below. The pen was given the same amount of feed every day for a week, as indicated in the table below.

Week	Date/Pig number	Weight of pigs				Total weight of pigs, kg	feed given daily, kg	No of days	Total feed for week, kg
		334	335	336	338				
1	Week begin 12 April	9.5	13	11.5	13.5		2.5	7	
2	Week begin 19 April	11.5	13.5	13.5	16		3	7	21
3	Week begin 26 April	14	12	15.5	19		3.5	7	
	Week begin 3 May	16.5	11	17.5	22.5		xxxxx	-	xxxxxx

Complete the table below.

(12 marks)

Week	Begin Date	End Date	Total liveweight gain, kg	Total Feed used for the week, kg	Feed Conversion, $\text{kg-feed} : \text{kg-lwg}$
1	12 Apr	19 Apr			
2	19 Apr	26 Apr		21	
3	26 Apr	3 May			
Total for the period 12 Apr to 3 May					

$\text{lwg} = \text{liveweight gain}$

d. Compare the Feed conversion of Week 3 with what is considered acceptable for pigs this size, and give the *most* likely reason/s if it is different. (4 marks)

e. Explain what is meant by Experimental Error in an exercise like this (calculating the Feed Conversion Ratios of pigs), and give ways to reduce it. (6 marks)

f. Use two y-axes to graph, over time (the x-axis):

- the average weight of the pigs
- the feed conversion of the pigs

Be sure to give the title of your graph and label all axes and lines clearly.

(7 marks)

g. In intensive projects, both tilapia and pigs require feeding. Compare the similarities and the differences between the two including types of feed each requires. (8 marks)

h. Discuss the pest control measures used on the campus Practical Agriculture plots this semester, including the target pests, chemicals used and the spray patterns used. (10 marks)

i. For each heifer in the photos below, give the approximate *age* and the *term* used to describe the animal based on the number of teeth. (4 marks)



Heifer A

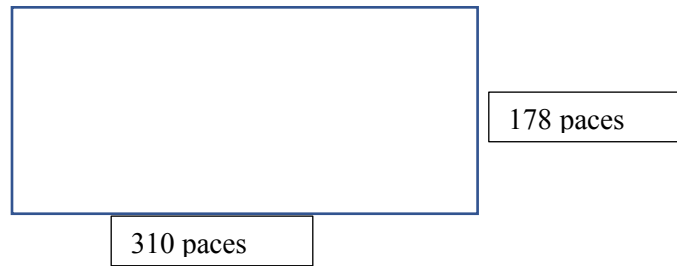


Heifer B

END OF QUESTION 2

Question 3

Annette has a plot. She estimated the area by pacing with the result below:



Annette measured her pace and found that she took 65 steps to walk 50 meters.

She will sow maize at the spacing of 90 cm rows, with the holes 40 cm apart. She will sow 3 seeds per hole, but will thin to two plants.

She plans to apply 350 kg per Ha of Cpd D, and 250 kg/Ha of AN. She will split the AN application.

- a. How many bags (50 kg) of Cpd D does she need for the plot? (6 marks)

- b. Explain **when** and **where** she should apply the AN, giving reasons for your answer. (6 marks)

- c. Give the quantity of AN she should apply the **first** application, in grams/station (of two plants).
..... (6 marks)

- d. She will sow seeds of the Seedco variety, SC527. Name two Seedco varieties which will be suitable for gap-filling, and explain your answer. (4 marks)

- e. There is couch grass (*Cynodon dactylon*) in the plot. She plans to control the couch grass using StellaStar at the rate of 1 litre/Ha using a 16-litre knapsack sprayer.
 - i. How many ml of StellaStar are needed per sprayer? (2 marks)
 - ii. What are the signs that StellaStar is working against the couch grass? (2 marks)

- f. Briefly explain 3 guidelines for carrying out thinning of maize properly. (6 marks)

g. Four pigs in a pen were weighed over a period of three weeks, with the results below. The pen was given the same amount of feed every day for a week, as indicated in the table below.

Week	Date/Pig number	Weight of pigs				Total weight of pigs, kg	feed given daily, kg	No of days	Total feed for week, kg
		334	335	336	338				
1	Week begin 12 April	19	20	23	21		3.5	7	
2	Week begin 19 April	21	22	26	23		4.5	7	31.5
3	Week begin 26 April	23	25	29	26		5	7	
	Week begin 3 May	26	28	32	49		-----	-	-----

a. Complete the table below.

(12 marks)

Week	Begin Date	End Date	Total liveweight gain, kg	Total Feed used for the week, kg	Feed Conversion, $\text{kg-feed} : \text{kg-lwg}$
1	12 Apr	19 Apr			
2	19 Apr	26 Apr		31.5	
3	26 Apr	3 May			
Total for the period 12 Apr to 3 May					

$\text{lwg} = \text{liveweight gain}$

h. Compare the Feed conversion of Week 3 with what is considered acceptable for pigs this size, and give the most likely reason/s if it is different. (4 marks)

i. Choose one Agricultural enterprise that you worked in *this* semester. *Briefly* describe the enterprise, then suggest some improvements that could be made to the enterprise. (4 marks)

j. The table below shows the growth of a maize plant. Use two y-axes to graph the change in leaf number and its growth.

Be sure to clearly label all parts of the graph.

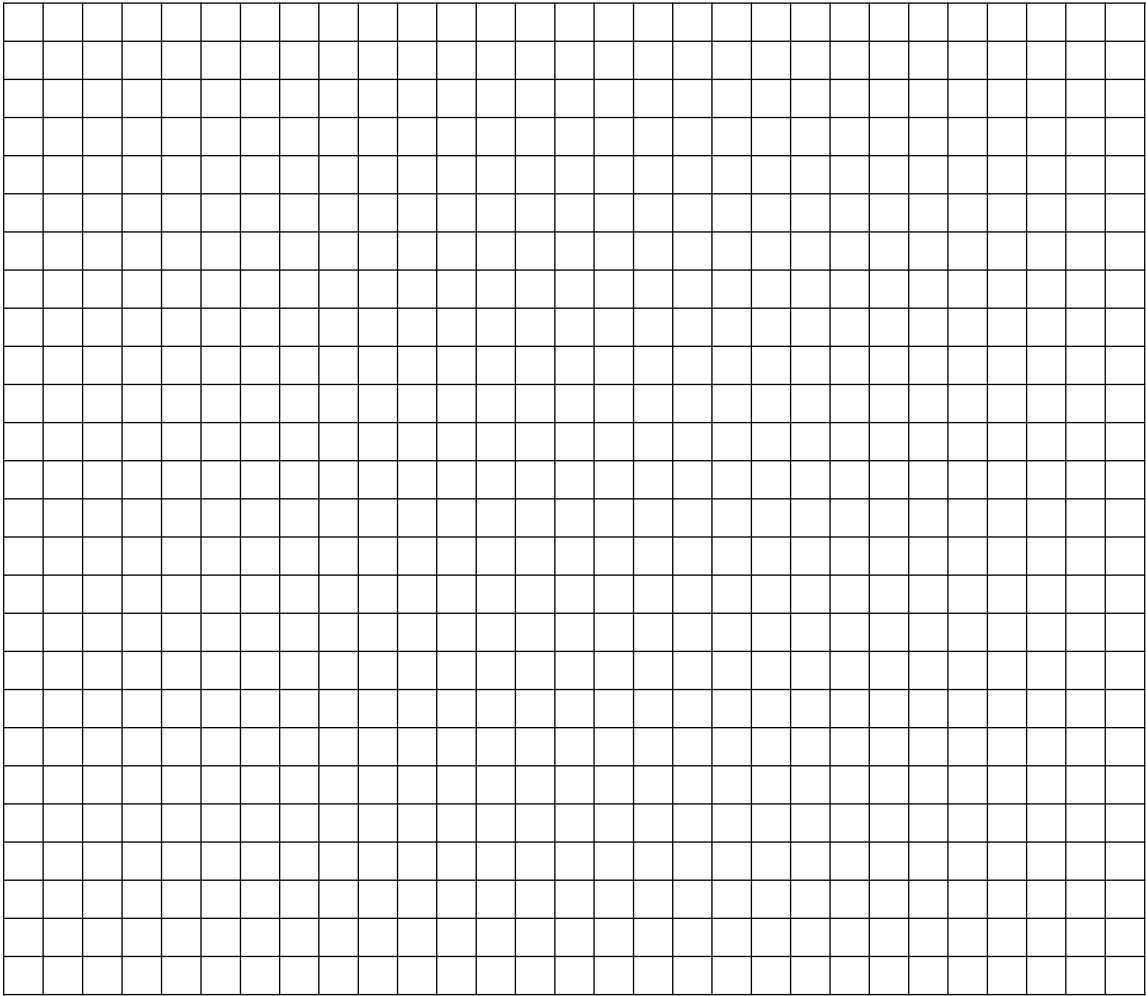
Also, mark on the graph when AN should be applied and when tasseling began.

(8 marks)

Age in weeks	No of leaves	Average plant leaf height of SC529, m
0	0	0
1	2	0.1
2	4	0.2
3	6	0.3
4	8	0.4
5	10	0.7
6	12	1.2
7	14	1.5
8	15	1.7
9	16	1.9
10	16	2.1
11	16	2.3
12	16	2.5
13	16	2.5
14	16	2.5

End of Question 3

This graph may be used for any question requiring a graph.



End of Exam