



## **ANIMAL PRODUCTION SYSTEMS SAMPLE EXAMINATION**

Section 7 of the *New WACE Manual: General Information 2006–2009* outlines the policy on WACE examinations.

Further information about the WACE Examinations policy can be accessed from the Curriculum Council website at [http://newwace.curriculum.wa.edu.au/pages/about\\_wace\\_manual.asp](http://newwace.curriculum.wa.edu.au/pages/about_wace_manual.asp).

The purpose for providing a sample examination is to provide teachers with an example of how the course will be examined. Further finetuning will be made to this sample in 2007 by the examination panel following consultation with teachers, measurement specialists and advice from the Assessment, Review and Moderation (ARM) panel.





Sample Examination  
Question/Answer Booklet

**ANIMAL PRODUCTION  
SYSTEMS**

Please place your student identification label in this box

Student Number: In figures

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In words

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***Time allowed for this paper***

Reading/planning time before commencing work: Ten minutes

Working time for paper: Three hours

***Material required/recommended for this paper***

**To be provided by the supervisor**

This Question/Answer Booklet

**To be provided by the candidate**

Standard items: Pens, pencils, eraser or correction fluid, highlighter, ruler, printed English language dictionary and/or bilingual dictionary (non electronic and not a thesaurus)

Special Items: Calculators satisfying the conditions set by the Curriculum Council for this course.

***Important note to candidates***

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

***Structure of this paper***

Section	Outcomes	Suggested working time	Number of questions available	Number of questions to be attempted
ONE: Short response	1,2,3 and 4	140 mins	8	8
TWO: Extended response	2 and 3	40 mins	2	1

***Instructions to candidates***

1. The rules for the conduct of Curriculum Council examinations are detailed in the *Student Information Handbook*. Sitting this examination implies that you agree to abide by these rules.
2. Answer all questions by writing your answers in this booklet in the spaces provided.
3. You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
4. Spare answer pages may be found at the end of this booklet. If you need to use them, indicate in the original answer space where the answer is continued (i.e. give the page number).

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**SEE NEXT PAGE**

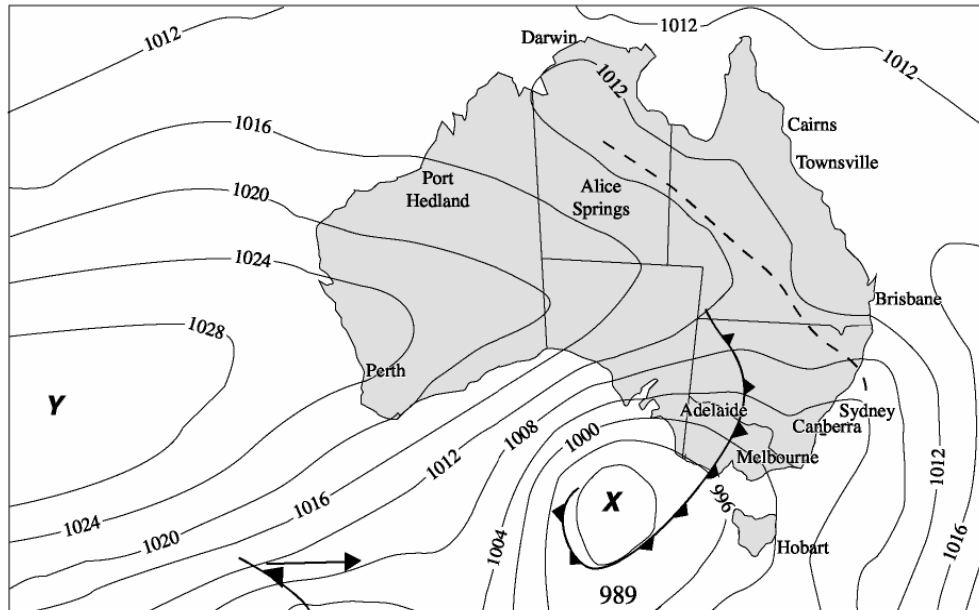
## SECTION ONE: Short response

This section has **EIGHT** questions. Attempt **ALL** questions.

Allow approximately 140 minutes for this section [134 marks].

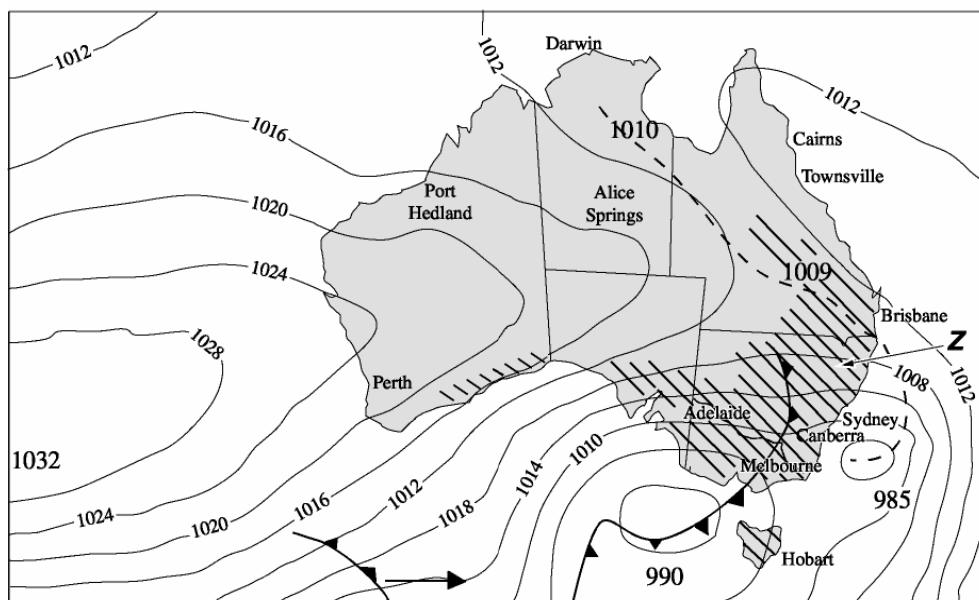
The following maps refer to weather conditions.

**Map A — 10 pm 2 August 2004**



Provided by the Australian Government Bureau of Meteorology

**Map B — 4.00 am 3 August 2004**




Provided by the Australian Government Bureau of Meteorology

**SEE NEXT PAGE**

**Question 1**

(Board of Studies New South Wales, 2005)

Answer the following questions by referring to the maps on page 4.

(a) What does the  symbol indicate on the weather map? *[1 mark]*

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(b) Identify the type of pressure system at point X and at point Y located on Map A. *[2 marks]*

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(c) In which direction will winds travel around pressure systems X? *[1 mark]*

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(d) Using information from maps A and B, outline and predict the changes in weather conditions at point Z between 10 pm on 2 August and 12 noon on 3 August 2004, and identify a possible consequence of this forecast on an extensive animal production enterprise. *[2 marks]*

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**Question 2**

Name ONE farm product you have studied.

Name of farm product: \_\_\_\_\_

(Board of Studies New South Wales, 2001)

**(a)** Identify ONE criterion for assessing the quality of the product.

*[1 mark]*

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**(b)** Describe TWO actions a farmer may take to maximise the quality of the product before it leaves the farm.

*[2 marks]*

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**(c)** Explain, using a specific example, how agencies or organisations may contribute to the marketing of the product.

*[2 marks]*

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**(d)** Discuss the advantages and disadvantages of the impact of one aspect of scientific research, on the production process for the product.

*[5 marks]*

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**Question 3**

(Board of Studies New South Wales, 2001)

The graph below shows Australian commodity prices for three groups (wool, beef and wheat) relative to 1980.

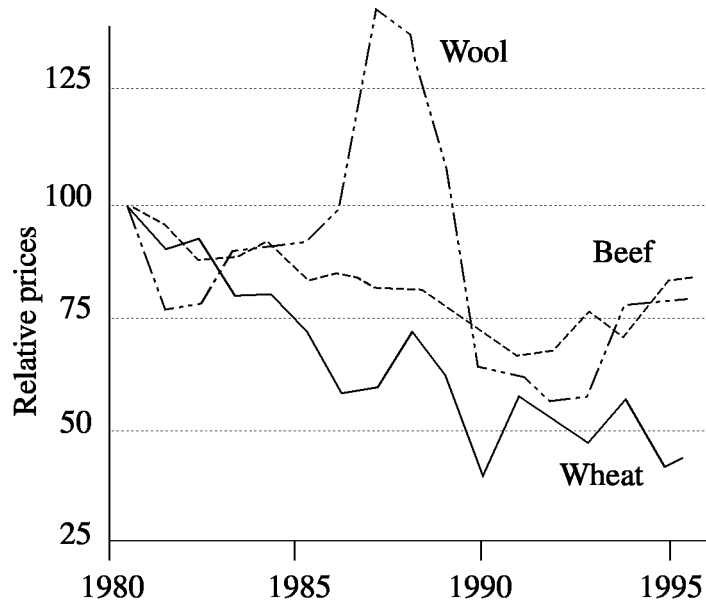


Fig. 1: Australian commodity prices relative to 1980

(a) What is the main trend over time for prices received by farmers in all three commodity groups?

[3 marks]

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(b) Describe TWO possible changes to farming practices if this trend continues.

[2 marks]

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**Question 4.**

**(a)** Identify and describe a significant characteristic in a breeding system for an animal production system you have studied.

(Board of Studies New South Wales, 2001)

*[3 marks]*

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**(b)** Describe an objective measurement used to monitor that characteristic.

(Board of Studies New South Wales, 2001)

*[5 marks]*

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**(c)** Explain how a producer can effectively meet the stated characteristic in the breeding program.

*[4 marks]*

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**Question 5**

(a) What is meant by a Feed Conversion Ratio (FCR)?

[1 mark]

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(b) Why do ruminant animals have a less efficient feed conversation ratio than mono-gastric animals?

(Board of Studies New South Wales, 2001)

[2 marks]

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**Question 6**

The oestrous cycle:

Complete the following sentences using the words provided.

[8 marks]

**Word list**

Corpus luteum, progesterone, Follicle stimulating hormone (FSH),  
Luetenising hormone (LH), pituitary gland, follicle, oestrogen,

\_\_\_\_\_ is released from the \_\_\_\_\_ and stimulates a  
\_\_\_\_\_ to develop in the ovary. Once the follicle is developed, the ovary  
releases the hormone \_\_\_\_\_ which stops FSH production. The pituitary  
gland releases the hormone \_\_\_\_\_ which makes ovulation occur. After  
ovulation the follicle degenerates and becomes the \_\_\_\_\_ which  
releases \_\_\_\_\_. This stops the oestrous cycle and prepares the body for  
pregnancy. If pregnancy does not occur the uterus produces prostaglandins to reduce  
the size of the corpus luteum and progesterone levels. This stimulates the  
\_\_\_\_\_ to release FSH and the cycle starts again.

(Clark, c2004)

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Question 7 refers to the information below

Table 1: Beef cattle breeding herd records, 2006

Cow No.	Breed *	Age (yrs)	Calf No.	Sex **	Date of birth (DoB)	Birth Weight (kgs)	Weaning weight on 11/9/06 (kgs)	Age at 11/9 (days) (DoB-11/9)	Growth Rate (kgs/day)	Corrected 200 day weight (kgs)	Rank	Comments
607	MG-A	3	916	H	2/4/06	23	90	163				
108	A	4	915	B	26/3	42	188	170	0.85	212		
A9	A	6	914	B	26/3	34	173	170	0.82	190		
B8	A	7	913	S	26/3	30	175	170	0.85	200		B8=Fence breaker
40	A	6	912	H	23/3	34	174	173	0.81	204		
35	A	13	909	B	22/3	32	118	174	0.49	145		
802	SF-MG	1.5	908	B	21/3	30	122	175	0.53	152		
U50	A	14	907	H	29/3	45	126	167	0.49	172		
30	SF	5	906	H	31/3	66	229	165	0.99	274		
105	A	4	905	S	29/3	50	175	167	0.74	205		
U52	A	12	-	B	30/3	45	Died at birth					Dystocia
B21	A	7	904	S	31/3	66	220	165	0.93	252		

**'How to calculate calf growth and corrected 200 day weights'**

**Information needed to calculate:**

➤ **Growth Rate (kgs/day)** =  $\frac{\text{Weaning Weight (11/9)} - \text{Birth weight}}{\text{Age at 11/9 (days)}}$

**Formula:**

➤ **Corrected 200 day weight (kgs)** =  
(Growth Rate x 200) + (Corrections for Sex of calf and Age of cow) + (Calf Birth Weight)

❖ To compare calves of **different ages:**

Calculate **corrected 200 day weight** = Growth Rate x 200 (kg)

❖ To compare calves of **different sex** growing at different rates:

Correct the 200 day weight as follows:

✎ Bulls = (Growth Rate x 200) - 5%( Growth Rate x 200)

✎ Steers = (Growth Rate x 200)

✎ Heifers = (Growth Rate x 200) + 5%( Growth Rate x 200)

❖ To compare calves from **different aged cows** {have bigger or smaller calves and have higher or lower milk yields}

Correct the 200 day weight as follows:

✎ 2 yr old cow = (Growth Rate x 200) + 15%( Growth Rate x 200)

✎ 3 yr old cow = (Growth Rate x 200) + 10%( Growth Rate x 200)

✎ 4 yr old cow = (Growth Rate x 200) + 5%( Growth Rate x 200)

✎ 5-9 yr old cow = (Growth Rate x 200) + 0%( Growth Rate x 200)

✎ 10 yr old cow = (Growth Rate x 200) + 5%( Growth Rate x 200)

✎ 11 yr old cow = (Growth Rate x 200) + 10%( Growth Rate x 200)

✎ 12 yr old cow = (Growth Rate x 200) + 15%( Growth Rate x 200)

❖ Do not forget to add on **weight of calf at birth**

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**(b)** make recommendations about potential sires.

*[10 marks]*

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**(c)** make recommendations regarding an increase in female breeders.

*[10 marks]*

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**SECTION TWO: Extended answer**

This section contains **TWO** questions.

Choose **one** question and write your answers in the spaces provided.

Allow approximately 40 minutes for this section *[28 marks]*.

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**Question 1**

There are various techniques used to manipulate the oestrous cycle in farm animals.

Identify, explain and evaluate one technique that a farmer may use to manipulate the oestrous cycle in an animal model of your choice.

*[28 marks]*

**OR**

**Question 2**

Chemical Safety Standards are a vital part of animal production.

Identify six main classes of safe veterinary chemicals and explain the importance of adequate labelling for each product. In your response, predict **one** consequence, in relation to an animal you have studied, if these instructions are not followed.

*[28 marks]*









**ACKNOWLEDGEMENTS****SECTION ONE****Question 1: Maps**

Bureau of Meteorology. (2004). [Weather maps of Australia: 10 pm 2 August 2004; 4 am 3 August 2004]. Retrieved October, 2006, from Board of Studies New South Wales website:

[http://www.boardofstudies.nsw.edu.au/hsc\\_exams/hsc2005exams/pdf\\_doc/primary\\_ind\\_vet\\_05.pdf](http://www.boardofstudies.nsw.edu.au/hsc_exams/hsc2005exams/pdf_doc/primary_ind_vet_05.pdf).

**Parts a–d**

Board of Studies New South Wales. (2005). *Primary Industries: 2005 Higher School Certificate Examination* (p. 21, qs 20a–d). Retrieved October, 2006, from

[http://www.boardofstudies.nsw.edu.au/hsc\\_exams/hsc2005exams/pdf\\_doc/primary\\_ind\\_vet\\_05.pdf](http://www.boardofstudies.nsw.edu.au/hsc_exams/hsc2005exams/pdf_doc/primary_ind_vet_05.pdf).

**Question 2:** Board of Studies New South Wales. (2001). *Agriculture Paper 1: 2001 Higher School Certificate Examination* (p. 2, q. 1). Retrieved October, 2006, from

[http://www.boardofstudies.nsw.edu.au/hsc\\_exams/hsc2001exams/pdf\\_doc/agricult\\_p1\\_01.pdf](http://www.boardofstudies.nsw.edu.au/hsc_exams/hsc2001exams/pdf_doc/agricult_p1_01.pdf).

**Question 3:** Board of Studies New South Wales. (2001). *2001 HSC specimen paper: Agriculture* (p. 5, q. 2). Retrieved November, 2006, from

[http://www.boardofstudies.nsw.edu.au/syllabus\\_hsc/pdf\\_doc/agriculture\\_specexam.pdf](http://www.boardofstudies.nsw.edu.au/syllabus_hsc/pdf_doc/agriculture_specexam.pdf).

**Question 4a–b:** Board of Studies New South Wales. (2001). *2001 HSC specimen paper: Agriculture* (p. 12, q. 5a). Retrieved November, 2006, from

[http://www.boardofstudies.nsw.edu.au/syllabus\\_hsc/pdf\\_doc/agriculture\\_specexam.pdf](http://www.boardofstudies.nsw.edu.au/syllabus_hsc/pdf_doc/agriculture_specexam.pdf).

**Question 5b:** Board of Studies New South Wales. (2001). *2001 HSC specimen paper: Agriculture* (p. 13, q. 5c). Retrieved November, 2006, from

[http://www.boardofstudies.nsw.edu.au/syllabus\\_hsc/pdf\\_doc/agriculture\\_specexam.pdf](http://www.boardofstudies.nsw.edu.au/syllabus_hsc/pdf_doc/agriculture_specexam.pdf).

**Question 6:** Clark, A. (c2004). *Senior agriculture* (Book 1). Clayton South, Vic.: Blake Education.