THE ROYAL COLLEGE OF VETERINARY SURGEONS
CERTIFICATE EXAMINATION IN SHEEP HEALTH AND PRODUCTION

Tuesday 22 August 2000

PAPER I
(3 hours)

PAPER 1 CONTAINS 2 SECTIONS

Illegible handwriting or failure to answer the question in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

PAPER I
SECTION A

Candidates are required to answer THREE of the following FIVE questions.
(Suggested time - TWO hours)

1. A client reports that a batch of March born lambs is scouring badly 14 days after turnout in early April. Discuss the differential diagnosis. What immediate action should be taken?

What preventive advice can be given in future years?

2. ‘Biosecurity’ is a term frequently used in livestock farming. Discuss the benefits and limitations of a closed flock in health and production terms.

3. A farmer with a flock of 500 mule ewes lambing in April at 18001o, requests assistance because he is losing too many lambs within the first week of life. What information would you require from the farmer and what investigations would you carry out? Draw up an action plan to reduce or prevent further losses.

4. Discuss the different subsidy payments that are available under the Sheep Annual Premium Scheme. What contribution do they make to the profitability of the different sectors of the U.K. sheep industry? Suggest alternative support mechanisms that might be more appropriate in the future.

5. ‘The introduction of new breeds of sheep into the U.K. over the last 25 years has been a mixed blessing for the industry’. Discuss.

p.t.o. for Section B
THE ROYAL COLLEGE OF VETERINARY SURGEONS
CERTIFICATE EXAMINATION IN SHEEP HEALTH AND PRODUCTION

Tuesday 22 August 2000

PAPER I

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PAPER 1
SECTION B

Candidates are required to answer ALL SIX of the following Questions.

(Suggested time - ONE hour)

6.  Note briefly problems associated with the use of general anaesthetics in the adult ewe.

7.  Write brief notes on each of the following:

   (i) Caseous lymphadenitis
   (ii) Johnes disease
   (iii) Copper toxicity.

8.  Briefly describe digit amputation in a ram.

9.  List the clinical signs of listeriosis.

10. Briefly describe the economic advantages and disadvantages of breeding from ewe lambs.

11. Briefly describe the conditions of ewes that may become significant when sheep are housed. Would winter shearing be helpful in controlling any of these?
THE ROYAL COLLEGE OF VETERINARY SURGEONS
CERTIFICATE EXAMINATION IN SHEEP HEALTH AND PRODUCTION

Tuesday 22 August 2000
PAPER II
(3 hours)

PAPER II CONTAINS 2 SECTIONS

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PAPER II
SECTION A

Candidates are required to answer THREE of the following FIVE questions.
(Suggested time - TWO hours)

1. Genetic selection for scrapie resistance in sheep is a breakthrough in animal breeding technology or the misappliance of science’. Discuss.

2. One of your farmers has experienced higher losses than normal in his ewe flock during the weeks immediately before and after lambing. Your help is sought to prevent these losses next season. How would you proceed?

3. A farmer reports that a number of ewes are in poor condition in October, despite good grazing since weaning in August. Discuss the possible causes of this and the impact of each on the long term profitability of the enterprise.

4. Border disease can cause significant problems in commercial flocks. How do you approach control of the disease? Outline the aetiology and pathogenesis of the disease in your answer.

5. A farmer reports a high number of ewes with vaginal and cervical prolapse in the last three weeks of pregnancy. Describe the various methods of treatment for this condition, including appropriate methods of anaesthesia and analgesia. What advice would you give to reduce the number of cases this season and to prevent a similar problem next year?

p.t.o. for Section B
THE ROYAL COLLEGE OF VETERINARY SURGEONS
CERTIFICATE EXAMINATION IN SHEEP HEALTH AND PRODUCTION

Tuesday 22 August 2000

PAPER II
(3 hours)

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PAPER II

SECTION B

Candidates are required to answer ALL SIX of the following Questions.
(Suggested time - ONE hour)

6. List the control measures for footrot in sheep.

7. Briefly illustrate a vaccination regime for the control of clostridial disease in the sheep flock.

8. What are the main components of the vet, and med. costs of a sheep enterprise?

9. What would be a reasonable figure for each economic component in a spring lambing lowland flock producing finished lambs?

10. List the advantages and disadvantages of using orf vaccine to control this disease in a sheep flock.

11. Briefly describe the possible aetiology of an outbreak of polyarthritis in 10 to 14 day-old lambs.
SECTION A
Candidates are required to answer THREE of the following FIVE questions.
(Suggested time - TWO hours)

1) A farmer with a 1,200 ewe lowground flock reports a perinatal lamb mortality rate of 17 per cent. Describe the investigations you would undertake to determine the probable cause(s).

2) Agricultural merchants sell large quantities of mineral and trace element supplements to sheep farmers. Discuss the cost-benefits of these products. How would you advise that the mineral and trace element requirements are met over the year for:
   a) a lowland flock, lambing in January?
   b) a hill flock, lambing in April?

3) The annual ewe mortality rate is quoted to vary from 4 to 8 per cent. List the major causes of ewe losses. Describe what control measures you would recommend to address this problem.

4) A client with 300 Mule ewes asks for advice about feeding the flock during pregnancy. The rams will be introduced in October and the ewes will be housed from mid-January. A lambing percentage of 190 per cent is predicted. Hay, silage, straw and fodder beet are potentially available. Discuss the merits of each of these as winter feed for pregnant ewes. Draw up a feeding plan for the flock for the last 8 weeks of pregnancy, utilising untreated straw and fodder beet. Indicate the type and quantity of supplementary feeding that you would suggest throughout this period.

5) The recent FMD crisis has highlighted the widespread trading of sheep through markets. Why does this happen and what are the implications of this for the health and welfare of sheep? What steps would you suggest to improve the welfare of sheep during the marketing process?
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SECTION B

Candidates are required to answer ALL SIX of the following Questions.

(Suggested time - ONE hour)

6) **List** the options for anaesthesia and analgesia during vasectomy of a ram.

7) Routine haematology determinations are rarely undertaken in general practice to investigate clinical disease. What alternative tests could be used to investigate acute disease and chronic disease situations?

8) **List** the clinical signs of scrapie in sheep. How would the signs of bovine spongiform encephalopathy differ from those of scrapie if sheep had been fed contaminated feedstuffs?

9) **Briefly** describe the possible reasons for wool loss in ewes.

10) **List** the zoonotic infections of sheep and comment **briefly** on the human health implications of each of these.

11) Tabulate the factors that contribute to the gross margin of a sheep enterprise. Enter typical values in pounds sterling against each, for an upland spring lambing flock selling breeding stock last year.
THE ROYAL COLLEGE OF VETERINARY SURGEONS
CERTIFICATE IN SHEEP HEALTH AND PRODUCTION

WEDNESDAY 8 AUGUST 2001
PAPER II
(3 hours)

PAPER II CONTAINS 2 SECTIONS

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SECTION A

Candidates are required to answer THREE of the following FIVE questions.
(Suggested time - TWO hours)

1. Routine examination of rams, including electro-ejaculation, one month prior to the service period, was much practised during the 1980’s, but is now rarely undertaken. How should the fertility of a ram stud be investigated? What advice would you offer to a client regarding the purchase of stud rams?

2. A farmer has a flock of 250 Polled Dorset ewes, which lambed in December and produced 375 live lambs. Ewes and lambs have remained indoors since lambing. By 6 weeks of age the majority of lambs weigh less than 12 kilograms. Discuss the possible reasons for this and describe the investigations that you would carry out to determine the cause. Formulate a health plan for the flock from lambing to weaning at 6 weeks of age, to prevent a similar problem next year.

3. “Organic” production is the solution to the current problems of sheep farming in the United Kingdom. Discuss.

4. What methods are available for the manipulation of the oestrus cycle in the ewe? Discuss the economic and practical considerations for the use of these methods in the United Kingdom.

5. Lowground lambs have the genetic potential to reach market weights of 36 to 40 kg by four months of age. However, millions of lambs are fattened off turnips, or fed high levels of concentrates during the late winter. Why does this situation arise? Discuss the potential welfare implications of such a delayed period to marketing.

P.T.O. for Section B
SECTION B

Candidates are required to answer ALL SIX of the following Questions.
(Suggested time - ONE hour)

6) **List** those diseases currently found on the continent of Europe that present a threat to the health of UK sheep. **Briefly** comment on the implications of each of these diseases for the sheep industry in the event of their introduction to the UK.

7) **Briefly** describe the clinical features of sheep pulmonary adenomatosis.

8) **Outline** a programme for embryo transfer in the ewe, to include both collection from the donor and insertion of embryos into the recipient.

9) **List** those factors that adversely affect the yield, fibre quality and grading of wool.

10) **Briefly outline** the causes of ovine respiratory disease in housed lambs. What measures may be taken to prevent these diseases?

11) **List** the costs and benefits of castration and tail-docking lambs. Comment **briefly** on the methods that are currently available for these procedures and suggest refinements that might be introduced to provide greater analgesia.
Candidates are required to answer ALL TEN questions

Allow 12 minutes per question.

Please start the answer to each question on a separate sheet; failure to do so could lose you marks.

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1. List the important tick-borne diseases of sheep in the United Kingdom and outline options for their control.

2. You are presented with a Suffolk ewe which has had an assisted lambing only minutes earlier. Tenesmus after delivery of the lamb has caused uterine prolapse. How will you deal with this case?

3. List the important clinical signs of polioencephalomalacia/cerebrocortical necrosis in sheep.

4. Briefly describe the clinical signs and control of sheep pulmonary adenomatosis (Joagsiekie).

5. During mid-September a farmer reports the loss of two Blackface gimmers within three weeks of grazing poor hill pasture. The farmer had noted no signs of illness before the death of either gimmer. What common conditions could cause sudden death in these gimmers?

6. List the important clostridial diseases of sheep. Outline a vaccination programme for the control of these diseases in a lowland flock, with all lambs finished off the ram.
7. List the different tests for anthelmintic resistance in sheep and the main advantages and disadvantages for each. Outline how you would conduct a faecal egg count reduction test to establish the efficacy of each of the broad spectrum sheep anthelmintics.

8. Briefly describe the clinical signs associated with ringworm caused by Trichophyton verrucosum in sheep. Which laboratory tests are used to support the clinical diagnosis of ringworm in sheep? What are the treatment options for ringworm in sheep?

9. What is the 'ram or teaser effect'? Briefly describe how it can be used in practice to manipulate the reproductive cycle of ewes.

10. Describe the aetiology and clinical presentation of scrapie in sheep. Briefly list the common differential diagnoses. Describe the control measures currently operating in the United Kingdom and comment upon any long-term consequences of their implementation.
THE ROYAL COLLEGE OF VETERINARY SURGEONS

CERTIFICATE IN SHEEP HEALTH AND PRODUCTION

TUESDAY 27 JULY 2004

PAPER II
(2 hours)

This Paper is in two Sections (A and B)
Candidates are required to answer TWO questions
ONE from each Section

Illegible handwriting or failure to answer the question in the form required may result in examiners being unable to award marks for information which candidates intended to convey.

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

SECTION A
(Suggested time - ONE hour)

1. During mid August your client complains of poor growth in a large group of homebred fattening lambs which had been weaned four weeks ago. A large number of the lambs show signs of diarrhoea. The fleeces of some lambs are contaminated with faeces.

The pasture has been grazed by ewes and lambs all season (and the previous two years). An anthelmintic was administered when the lambs first showed signs of scouring three weeks ago. The farmer has used a white drench anthelmintic (1-BZ benzimidazoles) for the past five years.

What are the common causes of illthrift in growing lambs? How would you investigate this problem? What control measures would you advise?

2. Your client complains of an unacceptable perinatal lamb mortality rate of 25 per cent in his low-ground flock last year particularly involving triplet lambs. He asks your advice in October as to how he could reduce such losses next year.

Describe the preventive medicine flock plan you would establish, and how you would monitor the success or failure of your advice.

P.T.O. for Question 3
3. A pedigree Suffolk breeder wishes to increase the proportion of lambs born in the first week of January and asks your advice about synchronizing estrus for natural mating using intravaginal progestagen sponges. Last year results using this system were disappointing. At scanning only 2 ewes from a group of 10 were pregnant to the synchronized estrus after running with a ram lamb and 4 ewes from the second group of 10 ewes were pregnant after running with a mature ram. The breeder noticed that not all ewes were marked by the raddled rams. PMSG was not used last year. Fertility of the remaining 10 ewes in the flock was as expected for August and September.

- What pregnancy rate at scanning could the breeder reasonably expect from a well managed estrus synchronization and mating programme?

- What could you suggest to the breeder as possible reasons for the poor results last year?

- Would any further investigations be helpful?

- Produce an estrus synchronization programme for the breeder for this year based on the use of progestagen sponges and PMSG if considered necessary, for natural mating of 20 ewes on 7 August. Include dates and times of key events.

- How many rams would you consider necessary and how could mating be better managed to give a greater chance of success?
4. List the diseases/intestations that can be introduced through purchased flock replacements in the United Kingdom and comment upon the control of the most economically important.

5. Eight out of a flock of 500 Mule ewes have aborted, about 3 weeks before the start of lambing. The flock has no significant previous history of abortions. List the common causes of abortion occurring at this stage of pregnancy. Outline the advice that you would offer about the immediate management of the problem.

The flock is situated several hours drive away from the nearest veterinary investigation laboratory, so submission of whole exuyses and placentae is not practical. What samples should be collected from the products of abortion and what laboratory tests will be performed on these samples in order to identify the common causes of abortion in sheep?

Outline the immediate and future options for the control of chlamydial abortion in this flock.

P.T.O. for Question 6
6. During October you are asked to investigate the cause of lameness in a flock of 500 April-lambing Greyface ewes. About 10% of the flock are extremely lame in one or more foot, remaining recumbent for long periods or carrying the affected limb. Examination of a small group of ewes shows signs of swelling and moistening of the interdigital skin with separation and under-running of the sole and hoof wall. In some ewes, the hoof walls and toes are overgrown and mis-shapen, trapping soil and inflammatory exudate.

- List the common causes of foot lameness in sheep, indicating how you would differentiate between them.
- What advice would you offer about management of the current problem?
- What are the economic consequences of this severe lameness problem?
- How might similar losses and the associated welfare problem be prevented in future years?
1. You are presented with a four year-old pedigree Suffolk ram which has been dull and inappetant for the past four days. The ram shows abdominal straining but only a few drops of urine are passed. The serum creatinine and urea concentrations are 570 \( \mu \text{mol/L} \) and 72.8 mmol/L, (normal less than 150 \( \mu \text{mol/L} \) and 6.6 mmol/L respectively). Amputation of the vermiform appendix, which contains granular debris at the necrotic tip, produces a free flow of urine.

   a. What is the likely prognosis of this ram – give reasons?
   
   b. What further tests could be undertaken?
   
   c. What treatment could be considered?
   
   d. How could the condition be monitored?
   
   e. List FOUR possible control measures.

2. During late May you are presented with a 10 week-old Blackface cross lamb which is unable to bear weight on its pelvic limbs and frequently dog-sits. Thoracic limb function is normal. There is no evidence of cauda equina syndrome. The lamb has exhibited no abnormalities until noted by the farmer two days ago.

   a. How would you localize the lesion?
   
   b. What conditions would you consider?
   
   c. How would you confirm your provisional diagnosis?
   
   d. What treatment would you recommend?
   
   e. What other factors would you consider in the aetiology of this condition?
3. **NOTE:** There are THREE parts to this question:

**PART i.** The following serum protein results are obtained from three adult sheep (A, B, C) which are presented in poor body condition (1.5; scale 1-5). All three sheep are due to lamb in approximately one week.

Comment upon the serum protein concentrations given, and the probable pathophysiological cause.

Normal ranges: albumin (30-35 g/L) and globulin (35-50 g/L)

<table>
<thead>
<tr>
<th></th>
<th>Albumin (g/L)</th>
<th>Globulin (g/L)</th>
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<tbody>
<tr>
<td>A.</td>
<td>24.9</td>
<td>42</td>
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<tr>
<td>B.</td>
<td>17.1</td>
<td>72</td>
</tr>
<tr>
<td>C.</td>
<td>8.7</td>
<td>37</td>
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</tbody>
</table>

**PART ii.** List THREE acute phase proteins that can be determined in sheep. When could these assays be of use in general practice?

**PART iii.** List FOUR characteristics of an inflammatory peritoneal exudate.

4. **Briefly** describe the aetiology, clinical signs, treatment and control of acute mastitis in ewes.

5. Jansen Animal Health, in association with the National Sheep Association, have launched a Coccidiosis Survey for 2005 as outlined in the attached letter to veterinary surgeons and a poster for the waiting room.

From the information provided in the supplied literature attached, discuss the following:

a. The design of the survey.

b. The economics quoted in the letter.

c. Your reaction to a report of 120,000 oocysts per gram obtained from a seven week-old lamb with diarrhoea grazing permanent pasture in late May.

d. The implied control measures.

**P.T.O. for Questions 6, 7, 8, 9 and 10**
6. During early May, you are asked to investigate the sudden death of three sheep in a group of 26 potentially valuable 14 month-old Bluefaced Leicester rams. The skin and mucous membranes of the dead rams are obviously jaundiced. At necropsy, the livers from the three dead sheep are swollen and bronze-coloured and the kidneys are very dark, with a metallic sheen. Four rams are obtunded with rapid, shallow breathing, and jaundice mucous membranes.

   a. What is the most likely diagnosis for this problem?
   b. How would you confirm this diagnosis? Indicate biochemical values where appropriate, which would be consistent with this diagnosis.
   c. How would you treat the four sick rams?
   d. How would you prevent further clinical cases in the group?

7. Why do sheep farmers use vasectomised rams? What are the potential economic benefits of using vasectomised rams?

   **Outline a programme** for the use of vasectomised rams for a March lambing flock of Greyface ewes in the North of Scotland.

8. **List** the important diseases which can be introduced into a flock with purchased sheep.

   What measures would you recommend to minimise the risk of introducing each of these diseases?

9. **List** the common causes of infectious abortion in the United Kingdom.

   You are a veterinary practitioner in a remote part of the United Kingdom, without easy access to a veterinary laboratory. One of your clients suffers an outbreak of abortions, which you are asked to investigate. What samples would you take and why, bearing in mind that these must be submitted to the laboratory by post?

10. Write **short notes** on caseous lymphadenitis (CLA).
1. Describe the salient features of a flock health plan you have written for a client with a large lowground flock of mule sheep (or equivalent intensive production system). Show areas where a cost:benefit could be expected.
2. In mid August you are asked for advice about the management of a group of 350 Spring-born Texel cross finishing lambs with signs of ill thrift and scour. The lambs have been grazed on permanent pasture on a sheep only farm.

Faecal trichostrongyle egg counts of 10 lambs, serum vitamin B\textsubscript{12} concentrations of 7 lambs and blood glutathione peroxidase concentrations of 5 lambs are given below.

<table>
<thead>
<tr>
<th>Faecal trichostrongyle egg counts (eggs per gram)</th>
<th>Serum vitamin B\textsubscript{12} concentrations (pmol/l)</th>
<th>Blood glutathione peroxidase concentrations (u/ml RBC)</th>
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</thead>
<tbody>
<tr>
<td>450</td>
<td>500</td>
<td>40.2</td>
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<td>1500</td>
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a. How would you manage this problem?

b. What factors influence your choice of treatment?

c. **Outline a programme** to prevent similar problems from occurring in this flock next year.

P.T.O. for Question 3
3. At the beginning of September you are asked to examine a group of 500 April-born Suffolk and Texel cross lambs, from a lowground flock of 450 Greyface ewes, to determine the reason why none reached slaughter weight and condition during the second half of August. The ewes had been dosed with moxidectin at lambing to control their periparturient rise in faecal worm egg counts and the lambs were weaned onto ‘safe’ pasture. Examination of the environment and of the flock showed good pasture cover and no evidence of lameness, scour or skin disease. The lambs were uniformly well grown, but open-fleeced and hollow flanked. Faecal trichostrongyle egg counts of 10 lambs, serum vitamin B_{12} concentrations of 5 lambs and blood glutathione peroxidase concentrations of 7 lambs are given below.

<table>
<thead>
<tr>
<th>Faecal trichostrongyle egg counts (eggs per gram)</th>
<th>Serum vitamin B_{12} concentrations (pmol/l) Normal &gt;328pg/ml</th>
<th>Blood glutathione peroxidase concentrations (u/ml RBC) Normal &gt;40 U/mL</th>
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<tr>
<td>50</td>
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a. Explain the economic importance of this case.

b. How would you manage this case?

c. What factors govern your choice of treatment method?

d. What preventive measures would you recommend for next year?
4. A client reports an increase in the number of ill-thriven adult ewes in an upland flock. This has taken place over a number of years and has led to an increased culling rate and an unacceptable number of deaths amongst the poorer ewes over the course of the winter. In all other respects the management of the flock has remained the same over this time. The majority of female replacements are homebred and only rams and a small number of breeding females are purchased on to the unit. The farmer informs you of his concerns two weeks prior to weaning.

**Discuss** the common causes of such a problem and describe and what investigations you would undertake. For **TWO** of these common causes describe how the problem can be prevented or controlled.
5. A farmer with a lowground flock of 750 English mule ewes mated to Suffolk rams complains of lamb losses around 20 per cent. What information would you collect during your farm visit? What advice would you offer for next year?

Use examples to illustrate your answers where appropriate.

6. Fasciolosis (liver fluke disease) has increased in prevalence in the United Kingdom in recent years.

Describe the important epidemiological features of this disease, and its diagnosis. What are the possible reasons for this increase?

Describe how the condition might be controlled more effectively.
1. 600 Greyface ewes are lambed under polythene tunnels, starting at the beginning of March. Ewes and lambs are moved onto permanent grass pasture between 24 and 72 hours after lambing. The shepherd approaches you at the beginning of April with a complaint of severe lameness involving about 50 lambs.

a. How would you investigate this complaint?

b. What are the most likely causes of such a problem?

c. What would be your recommendation for treatment?

d. What would be your recommendation for preventing similar problems next year?

2. In mid August you are asked for advice about the management of a group of 350 March-born Suffolk cross lambs with signs of ill thrift and scour. The lambs were grazed on permanent pasture on a sheep-only farm. The faecal trichostrongyle egg counts (epg) of 10 lambs are –

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<td>1600</td>
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<td>950</td>
<td>2250</td>
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</table>

a. How would you manage this problem?

b. What factors govern your choice of treatment?
3. In mid February, you are asked to investigate the cause of pruritus in an outwintered group of 300 Greyface ewe lambs. You identify an average of three *Bovicola ovis* parasites per 10 cm wool parting in several sheep.

   a. How would you manage this problem?
   b. **Discuss** the potential problems that might be associated with different management options.

4. Five comatose newborn lambs are brought into your surgery after a wet and cold night.

   a. How would you treat these lambs?
   b. What factors govern your choice of treatment?
   c. **Outline** the principles involved to prevent similar problems during subsequent years.

5. **Outline** how you would investigate suspected flukicide resistance in a sheep flock.

6. A flock owner has asked you to examine a number of ewes with facial skin lesions.

   a. What diseases would you consider?
   b. How would you arrive at a definitive diagnosis?

7. a. **List** the notifiable diseases of sheep in the United Kingdom.
   b. Write **short notes** on the cause, epidemiology and clinical signs of bluetongue in sheep. Why has there recently been concern over bluetongue introduction to the United Kingdom?

8. 250 housed Dorset cross ewes are due to start lambing on 27th December. On 5th December, 8 ewes are seen with clinical signs of isolation from the main group, depression, apparent blindness and fine muscle tremours of the face and ears.

   a. What are your main differential diagnoses based on the clinical signs described?
   b. How would you confirm your diagnosis and further investigate this problem?
   c. How would you treat the affected ewes?
   d. What treatment response would you expect?
   e. How would you attempt to prevent further losses?
   f. How would you prevent similar problems next year?

P.T.O. for Questions 9 – 10
9. A supply of frozen bovine colostrum can be very useful during lambing as a supplement or replacement for ewe’s colostrum.

   a. **List** the benefits and potential disadvantages associated with the use of bovine colostrum in neonatal lambs.

   b. What is the aetiology of the most serious disease risk inherent in using bovine colostrum in neonatal lambs and what are the most common clinical and pathological findings?

   c. What treatment would you recommend for affected lambs?

   d. How might the condition be prevented at future lambings?

10. Write **short notes** on how the following conditions may be diagnosed in sheep giving **brief details** of specific tests where appropriate.

   a. Orf.

   b. Louping ill.

   c. Nematodiriosis.

   d. Caseous lymphadenitis.

   e. Contagious ovine digital dermatitis.

   f. Erysipelas infection in lambs.
THE ROYAL COLLEGE OF VETERINARY SURGEONS

CERTIFICATE IN SHEEP HEALTH AND PRODUCTION

TUESDAY 18 JULY 2006

PAPER II
(2 hours)

This Paper is in two Sections (A and B)

Candidates are required to answer TWO questions
ONE from each Section

Illegible handwriting or failure to answer the question in the form required may result in examiners being unable to award marks for information which candidates intended to convey.

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

SECTION A
(Suggested time - ONE hour)

1. The results of the ultrasound scanning of a Greyface flock on 27th January 2006 are summarised below. Concern is expressed that these results are not as good as those from previous years.

225 gimmers
   12 barren
   80 singles
   131 twins
   2 triplets

481 ewes
   13 barren
   69 singles
   314 twins
   85 triplets

The gimmers had been purchased as ewe lambs during September 2004 and then grazed on upland pastures until the end of October 2005. The ewes had been grazed on separate lowground pastures during this period. Both ewes and gimmers were moved to dairy cattle aftermath pastures at the end of October 2005, where they were kept in separate groups. Six keel-marked Suffolk rams were introduced to the gimmers and nine keel marked Suffolk rams were introduced to the ewes on 5th November 2005. The rams were removed on 10th December 2005 and the gimmers and ewes then remained on the dairy cattle pastures until 27th January 2006.
a. What target barren rates and scanning percentages would be reasonable for these sheep? Briefly explain how these targets are derived.

b. List the possible causes of high barren rates and poor scanning percentages in sheep.

c. How would you investigate this problem?

P.T.O. for Questions 2 and 3
2. Five Mule ewes from a flock of 500 have aborted between 1 and 3 weeks before the predicted start of lambing. The flock is housed in pens of 100 ewes.

   a. How would you manage this problem now?

   b. **List** the causes of abortion in sheep, giving an indication of the range of losses which they may incur and indicating which are common and which are unusual.

   c. How would you investigate the cause of this problem?

   d. **Describe** the laboratory diagnosis of abortion in sheep.

      Laboratory investigations confirm a diagnosis of chlamydial abortion.

   e. In the absence of preventive management, what abortion losses might be expected next year?

   f. How much will this cost?

   g. Explain the public health risks?

   h. How would you attempt to prevent a similar problem in future years?

   i. How much would these strategies cost?

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3. While visiting a major ram sale during September, you observe several animals in a pen of Suffolk ram lambs repeatedly nibbling at their feet and the plantar aspect of their fetlocks.

   a. What is the most likely cause of this problem?

   b. What other clinical signs would you expect to observe and what ancillary tests would you use to confirm your diagnosis?

   c. What are the consequences of introduction of this problem to another flock?

   d. **List** the other diseases which might be introduced with purchased sheep and explain how the risks associated with introduction of these diseases might be reduced.

   e. Explain other health problems which might be encountered in recently purchased sheep?
SECTION B
(Suggested time - ONE hour)

4. On 11th February, while returning from a routine visit to a sheep and beef farm to ultrasound scan a group of cattle for pregnancy, you notice a pruritic cast Blackface ewe in a field adjacent to your client’s lambing fields. On closer inspection, the fleece over the Blackface ewe’s neck and shoulders is matted and discoloured and areas of wool loss and severe exudative dermatitis are apparent over the flanks. On returning to your practice, you telephone your client to express your concern about the probability of sheep scab in his neighbour’s flock. Your client confirms that he is aware of the problem, but has been reassured that it is due to chewing lice. However, he also tells you that he has observed signs of pruritis in his flock of 520 Halfbred ewes, which are due to start lambing outdoors at the beginning of March.

a. How would you respond to this situation?

b. How would you diagnose the cause of pruritus in your client’s Halfbred ewes?

c. What are the potential economic consequences of sheep scab in this flock?

d. If you suspect sheep scab, what control method would you recommend?
e. What are the potential pitfalls associated with the treatment of sheep scab in the Halfbred ewes?

f. How much would the different treatment options cost?

g. How would you aim to prevent similar problems during subsequent years?

P.T.O for Questions 5 and 6
5. You are asked for a second opinion on lack of thrive in a group of 8 month-old Scottish Blackface wether lambs, which were purchased for finishing off pasture on a lowland dairy cattle farm.

a. **List** the differential diagnoses for ill thrift in these lambs, indicating which occur commonly.

b. **Describe** your approach to the investigation of this problem.

c. **Outline** the options for treatment of the common causes of ill thrift in these lambs, indicating the cost effectiveness of each option.

6. The majority of scientists now accept that global climate change is occurring, with a prediction that the United Kingdom will experience warmer and wetter winters, an earlier spring, and warmer, drier summers. Such a change is likely to have significant effects on the epidemiology of diseases of sheep and certain trends have been identified during recent years.

Discuss the effects of climate change on the epidemiology of specific diseases of sheep in the U.K, using examples where appropriate.
1. Write short notes on the following:
   a. Abomasal emptying defect.
   b. Tapeworm infestation of United Kingdom sheep.
   c. Sarcocystosis in sheep.

2. In 2006 the incidence of systemic pasteurellosis increased dramatically, in many cases despite the use of vaccination. Discuss the aetiology, risk factors and typical clinical and pathological findings in an outbreak of systemic pasteurellosis. Suggest why a vaccination policy may not always be effective in controlling this condition.

3. The National Scrapie Plan was first introduced in 2002 and later extended in 2006. Describe the principles and perceived benefits of the Scheme as it now stands.

4. List the plants commonly associated with toxicity in sheep. How would you investigate suspect bog asphodel (Narthecium ossifragum) poisoning in lambs? Give a brief outline of the pathogenesis of bog asphodel toxicity.

5. A post-mortem examination on a Scottish Blackface wether lamb, from a batch of 200 that were housed for finishing, revealed a ruptured bladder and cystic calculi. What are the main factors associated with urolithiasis in lambs? How would you prevent further cases of urolithiasis in these wethers?

P.T.O. FOR QUESTIONS 6 - 10
6. A flock owner reports that a number of his sheep have developed crusty skin lesions on the ears and back. What are the main diseases that would you consider in your differential diagnosis? How would you investigate and treat these conditions?

7. **LIST** the conditions that you would consider in the differential diagnosis of suspect foot-and-mouth disease in a lowland commercial flock in mid-July. Give a **brief** description of the lesions in **each** case.

8. What are Estimated Breeding Values (EBV’s)? **LIST** the **SEVEN** recorded traits that are used to arrive at an EBV for selecting breeding sheep.

9. Describe **briefly**, methods of performing a caesarean section on a ewe including choice of anaesthetics, surgery and drugs.

10. **Briefly** describe how would you diagnose, treat and prevent pregnancy toxaemia (twin lamb disease) in a ewe.
SECTION A
(Suggested time - ONE hour)

1. During 2006 systemic pyrethroid plunge dips were removed from the market in the UK. Discuss the ectoparasiticide treatment options that now remain and the range of ectoparasitic conditions for which they are appropriate.

The benefits of a regional approach to sheep scab control have been described in recent years. Discuss the general principles of such an approach and discuss the potential pitfalls in such a scheme.

2. An emaciated cross-bred ewe is presented by a flock owner as typical of a number of similar cases in the flock identified over the past three years. What conditions would you consider in your provisional diagnosis? LIST the main clinical and pathological features of each condition. Replacements have been purchased from a flock in which Johne’s disease has been identified. Detail how you would establish a definitive diagnosis for this disease.

3. You have been asked to formulate a health plan for a 500 ewe Blackface open hill flock lambing in April. Replacement gimmers are purchased annually from several flocks through the mart.

Which are the major diseases you would consider? Outline disease prevention and surveillance systems would you recommend.

P.T.O. FOR SECTION B
4. The majority of scientists now accept that global climate change is occurring. Recent predictions have suggested that as a result the United Kingdom will experience warmer and wetter winters, an earlier spring, and warmer drier summers. Such a change is likely to have significant effects on the epidemiology of diseases of sheep and certain trends have been identified during recent years.

Discuss the possible effects of climate change on the epidemiology of sheep diseases in the United Kingdom, using specific examples where appropriate.

5. You have been asked to investigate a high incidence of lameness in pedigree Suffolk ewes that were housed on straw in late December and due to lamb from mid-January. List the principal infectious and non-infectious causes of lameness and outline how you would arrive at a diagnosis. Discuss the treatment options for each cause of lameness listed. The sheep are now lambing; how would this impact on your choice of treatment?

6. A local landowner is concerned at the decline in grouse stock on the moor. He has read that sheep can be used as tick “mops” to help combat tick problems. Describe the life cycle of the sheep tick (*Ixodes ricinus*). List the three main sheep diseases that they can carry, stating the causal agent in each case.

How can each of these diseases be diagnosed, treated and controlled?
Describe the treatment options for the sheep flock and explain how treatment of the sheep would be beneficial to the grouse.
1. “Pneumonia is the single greatest cause of death in the sheep.”
   “Pasteurellosis is the most over-diagnosed disease of sheep.”
   (Hindson and Winter, in ‘Outline Of Clinical Diagnosis In Sheep’).

   Why might pasteurellosis in sheep, caused by *Mannheimia haemolytica* and by
   *Bibersteinia (Pasteurella) trehalosi* be over-diagnosed, and how might this be
   avoided?

2. Write brief notes on the treatment, control and prevention of ovine infectious
   keratoconjunctivitis.

3. Thin ewes are often of very low economic value. Why spend money on
diagnosis and treatment in such cases? Briefly illustrate your answer with an
example from your own experience.

4. Outline the importance of *Fusobacterium necrophorum* in foot lameness in
   sheep.

5. List the “Five Freedoms” developed by the Farm Animal Welfare Council
   (FAWC) used to protect the welfare of farm livestock. Outline FIVE areas that
   people caring for livestock should provide or address based on these Freedoms.

6. Outline the selection of treatment of hypothermia in a new born lamb
   depending on its age, condition and body temperature.

P.T.O for Questions 7 - 10
7. **List** the main zoonotic disease risks from sheep in the United Kingdom, indicating in **each** case how animal to human transmission occurs.

8. Name the main Wool Shedding Breeds present in the United Kingdom and detail the advantages or disadvantages of **ONE** of these breeds.

9. **Outline** the clinical presentation, diagnosis and differential diagnosis of nephrosis in young lambs.

10. **List** the clinical signs and causes of photosensitisation in sheep. How could you confirm your diagnosis? What other diseases could present with similar clinical signs?
SECTION A
(Suggested time - ONE hour)

1. You have been asked to formulate a health plan for a 500 ewe Blackface open hill flock lambing in April. Replacement gimmers are purchased annually from several flocks through the mart.

Which are the major diseases that you would consider? Outline the disease prevention and surveillance systems that you would recommend.

2. What are the major causes of sub-optimal lambing percentages in United Kingdom sheep flocks? What kinds of information might you want to obtain from a farm/flock in order to investigate these possible causes, and how might you obtain such data?

3. List the major tick-borne diseases that are present in the United Kingdom, outlining their aetiology, clinical signs, diagnosis and differential diagnosis. How may these diseases be prevented or controlled?
4. A farmer reports the birth of 5 lambs from purchased two year-old ewes (gimmers) presenting with poor birth coats and body tremors. **Discuss** the possible causes, what other signs might be present, how you would confirm the diagnosis and what control measures might be required.

5. Is the development of anthelmintic resistance in worm populations an inevitable consequence of the control of parasitic gastro-enteritis in sheep?

   **Describe** elements that you may include in a control plan for parasitic gastro-enteritis in a lowground mule flock, lambing inside in the spring and producing fat lambs off grass, in order to reduce the selection for anthelmintic resistance while maintaining acceptable production levels.

6. **List** the major clostridial diseases of sheep in the United Kingdom and their aetiologies, clinical signs and diagnosis. **Outline** a clostridial vaccination programme for a March lambing lowland flock.
1. **Outline** the clinical signs and diagnosis of fasciolosis in its acute, subacute and chronic presentations.

   At what times of year are these presentations likely to occur?

2. What are the main differences between footrot control programs and eradication programs?

   **Summarise** the potential benefits and problems associated with establishing and maintaining a footrot-free flock in the United Kingdom.

3. Sheep vary in their ability to limit the establishment rate, growth, fecundity and survival of worm parasites. This variation is partly heritable.

   a. What are the potential advantages, disadvantages and limitations of selecting sheep for increased acquired immunity to nematode parasites?

   b. **Compare** the benefits of producing terminal sire or longwool crossing tups selected for such resistance.

   P.T.O. for Questions 4 - 10
4. Your client has a commercial flock of 800 mule ewes that he puts to Texel tups. Last year they were lambing from 10th February until the middle of April and he was exhausted by the end of lambing. Summarise your advice for future years.

5. **Outline briefly** the proposed controversial new European Union sheep tagging plans.

6. What are the main causes of recumbency in ewes during late pregnancy? For **each** condition, **briefly describe** the typical clinical signs, and the management practices associated with an increased risk of disease.

7. **Describe, with the aid of sketch graphs** if you wish, how the supply and price of lamb in England varies throughout the year.

8. **Outline** how you might determine whether liver fluke is present on a farm.

9. A client with a previously closed pedigree flock of Hampshire Downs has decided to buy in some replacement ewes this year. **List** the diseases that there is a danger of introducing and suggest how this purchase could be avoided.

10. One of your clients has had a high number of mule ewes prolapse their vagina in the final two weeks of pregnancy. **Outline** your advice for preventing a similar problem in future years.
1. On February 24th a client telephones to tell you that in the preceding week he had nine ewes abort their lambs out of his flock of 400 commercial mules. The flock is due to start lambing on March 20th.

   a. What immediate advice would you give him?
   b. How would you investigate the problem?
   c. What are the differential diagnoses?

   List the differential diagnoses and discuss THREE in detail.

2. Several pens of mule ewes housed during late pregnancy are showing signs of pruritus with areas of mild wool loss and/or raised wool over their shoulders and backs.

   a. How would you investigate the cause of these signs?
   b. What are the major differential diagnoses?
   c. If Psoroptes ovis mites are found to be present, outline the treatment options available for these sheep. In what circumstances may the lambs born during the imminent lambing period become infested, and how might this problem be addressed?
   d. How may future outbreaks in this flock be prevented?

P.T.O. for Question 3
3. a. What are the possible causes of poor growth rates in weaned lambs?

b. **Outline** suitable target growth rates and finishing dates for United Kingdom February-born creep-fed fattening lambs, and April-born lambs finished on permanent pasture and silage aftermath.

c. Illustrate the possible economic cost of not achieving target growth rates.

d. **Describe** your diagnostic approach when investigating a group of ill-thriven weaned lambs.

e. For **TWO** of the possible causes, **describe** a suitable treatment plan aiming to allow the lambs to fatten economically.

**P.T.O for Section B**
SECTION B

(Suggested time - ONE hour)

4. A respected local farmer is regularly heard to exclaim loudly: ‘Vaccination is an expensive and unnecessary luxury in sheep farming today’.

You decide to respond by running a feature on different ovine vaccinations in each of your quarterly practice newsletters over the course of the following year. **Outline** your four articles.

5. You are asked to give a second opinion on a problem in a flock of 150 Lleyn & Texel X due to start lambing on March 7th. The ewes were scanned in mid January at 180% and split into 3 groups singles, twins and triplets at housing (condition score was not considered) at the beginning of March. Since housing, there has been several downer ewes, some vaginal prolapses and 12 rotten full term lambs from 6 ewes, 6 ewes producing small lambs and 12 producing brown mummified lambs. Ewes were fed ad lib hay, which was not analysed, and 0.5kg of concentrate. All sheep have been vaccinated against Toxoplasma and Enzootic Abortion as 2 year-olds. Plasma 3-hydroxybutyrate (BOHB) levels varied from 4.5 to 6.5 mmol/l in 6 ewes tested and condition scores varied from 1.5 to 4.0. Plasma Copper, Vit B12 and GSH-PX were all within the normal range.

What extra information would you need and how would you investigate this problem further this year and what actions would you suggest to prevent a recurrence of these problems next year?

What level of average hay and high quality concentrate diet would a twin bearing ewe in this flock need in the 8 weeks pre-lambing?

P.T.O. for Question 6
6. Flock Health plans have various meanings to different groups e.g. Farm Assurance, Organic Farming Groups, Farmers and Veterinary advisors.

**Discuss** the main aims of a good flock health plan from the veterinary viewpoint and how you would present, record and monitor one for mutual benefit to both the flock keeper and the veterinarian.