Candidates are required to answer **ALL EIGHT** questions

Allow 15 minutes per question.

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

*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.*

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1. Illustrate with diagrams the radiographic features of hock osteochondrosis in the dog.

2. **Briefly** describe your management of a 3-year-old cat with suspected pyothorax.

3. Explain **briefly** the principles of biological fracture fixation. When can the technique be employed and what fracture stabilisation techniques can be used to achieve this process?

4. **List** the clinical signs of pericardial disease in the cat and dog and the pathological conditions that give rise to these signs. Write brief notes on the surgical management of pericardial effusion.

5. **List** the common causes of increased upper respiratory noise in an English bulldog and **briefly** describe how each condition might be treated. **Briefly** explain why these abnormalities may worsen if treatment is not performed.

6. A six-year-old neutered female Jack Russell Terrier presented with peracute onset paraplegia, increased pelvic limb muscle tone and thoraco-lumbar spinal pain. Clinical and neurological examination revealed that the panniculus response was present, placing reflexes were absent and patellar reflexes were exaggerated. Pinching of the pelvic limb interdigital webs caused all limb joints to be flexed but there was no conscious response to this stimulus.

   What are the differential diagnoses and which is the most probable? What can you deduce about the localisation of the lesion and the prognosis for the dog? Justify your deductions.

**P.T.O. for questions 7 and 8**
7. Briefly describe the stages of acceptance of a free skin graft. List the reasons why a graft may not ‘take’. Briefly describe what precautions can be taken to avoid graft failure.

8. List the factors that influence the rigidity of a linear external skeletal fixator construction.
Candidates are required to answer ONE question from each section

Allow 40 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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SECTION A: SURGICAL ANATOMY

1. Explain, with the use of diagrams, the anatomical features of importance during the creation of a perineal urethrostomy in the cat. Briefly describe the differences seen in the dog.

2. Using diagrams, describe the surgical anatomy of the canine stifle joint. Emphasise the anatomy of the cranial cruciate ligament and menisci.

Discuss:

i) The significance of cranial cruciate ligament anatomy in the diagnosis of cranial cruciate ligament injuries.


SECTION B: SURGICAL PRACTICE

3. What factors influence the situation and structure of a sterile operating theatre within a veterinary hospital? Describe how its construction can reduce the incidence of surgical wound infections.

4. You have performed a small intestinal resection and anastomosis. Describe the different types of suture material that might be used during each stage of this procedure, including closure of the abdominal incision. Explain how the properties of each suture guide your selection.

P.T.O. for Section C
SECTION C: SURGICAL INVESTIGATION

5. A 9 year-old dog is presented to you with difficulty eating. Describe how you would investigate this case and differentiate the potential causes.

6. An eight-year-old neutered male German shepherd dog presents with chronic left pelvic limb lameness, characterised by stiffness after rest. The lameness has deteriorated recently. List the main differential diagnoses, giving reasons to justify your choices. Describe how you would investigate the case.
1. You are presented with an 8-year-old cat with acute, severe dyspnoea. A bilateral pleural effusion is suspected on thoracic auscultation, and confirmed radiographically. **Briefly outline** how you would perform a thoracocentesis on this patient, and the laboratory investigations you would perform to establish a diagnosis. **List FIVE** possible differential diagnoses for this patient, and the type of fluid that might be expected to be obtained in each instance.

2. Write **brief notes** on intervertebral disc degeneration. **Use diagrams** to show the difference between Hansen type I and Hansen type II disc herniation.

3. **List** the radiographic features consistent with primary bone sarcoma of the appendicular skeleton in dogs. **List** your differential diagnoses for this lesion and **briefly outline** how you would reach a definitive diagnosis.

4. **List** the treatment options for oral neoplasia. **Briefly** discuss the criteria that would lead to the selection of each.

5. **List FIVE** axial pattern flaps and give examples of the sites where they can be employed. What advantages and disadvantages do these flaps have over simple advancement flaps and the free skin graft?
6. A 5-year-old female domestic short hair cat presents with mild depression after a suspected RTA 24 hours previously. Her owners reported that she had not passed urine during this time and was unable to stand. **List** the potential causes of the anuria noted and the investigations you would use to determine its cause.

7. A 4-year-old female Springer spaniel is presented to you due to urinary incontinence of several months duration following ovariohysterectomy 8 months previously.

   a) Write **brief** notes on how this case could be investigated. Your diagnostic tests are consistent with a diagnosis of sphincter mechanism incompetence.

   b) **List** FIVE methods of treatment commonly used for this condition in the U.K.

8. **Briefly** describe the surgical management of a typical thyroid mass in the cat, including pre- and post-operative care. **Use diagrams** to illustrate the relevant surgical anatomy.
Candidates are required to answer ONE question from each section

Allow 40 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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SECTION A: SURGICAL ANATOMY

1. Describe, with use of diagrams as appropriate, the normal skeletal anatomy of the canine elbow joint. With reference to this anatomy, describe how to position the elbow optimally for radiographic examination, and explain how different radiographic positioning is utilised to improve the sensitivity of diagnosis of elbow dysplasia in young dogs.

2. With appropriate use of diagrams, describe the relevant surgical anatomy for:
   
   (a) intralaryngeal surgery
   
   and
   
   (b) extralaryngeal surgery.

SECTION B: SURGICAL PRACTICE

3. You are performing an enterectomy in a debilitated 18kg Labrador, which necessitates the removal of 30 cm of jejunum due to perforation and abscess formation following foreign body ingestion.

   i) Describe step-by-step with the use of diagrams how you would achieve a functional end-to-end anastomosis in this dog using surgical staplers.

   ii) Discuss the configuration of a closed staple and how this affects the anastomosis site.

   iii) Discuss the advantages and disadvantages of using a surgical stapler for this procedure.

P.T.O. for Question 4 and Section C, Questions 5 and 6
4. A series of orthopaedic operations performed in your hospital and involving the introduction of a metal implant, develop postoperative osteomyelitis. Explain how you would investigate this problem and measures you would take to deal with your findings.

SECTION C: SURGICAL INVESTIGATION

5. What historical features would give rise to a suspicion of bacterial infective (septic) arthritis in the dog? Describe how you would investigate such a case.

6. You are presented with an 8 year-old Peke with "persistent" vomiting and normal faeces. Discuss how you would investigate this case to reach a diagnosis. Name **THREE** of the commoner conditions you would consider and indicate what findings you would expect for each. In addition, **briefly** mention how you would correct each.
Candidate are required to answer ALL EIGHT questions

Allow 15 minutes per question.

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1. A 5 year-old neutered male dachshund presents with acute onset paraplegia, with intact deep pain sensation, of 4 hours duration. A disc extrusion in the T3-L3 spinal segment is suspected after examination and myelography with a view to surgical decompression is planned. Outline the pros and cons of corticosteroid therapy for this dog.

2. You plan to perform a pan-carpal arthrodesis for a carpal hyperextension injury in a 2 year-old 20kg dog, using a dorsally applied plate. What are the main principles to optimise outcome for this technique?

3. An 8 year-old intact male dog is presented to you with a suspected prostatic abscess. The dog is pyrexic, tachycardic and dehydrated. Briefly describe your treatment plan for this patient, listing the surgical options. List the potential short-term and long-term complications following surgical treatment of this patient.

4. a. List the items of equipment required to perform a diagnostic shoulder arthroscopy in a 7 months-old male Bernese Mountain Dog. 
   b. What factors would you consider when acquiring a telescope (arthroscope) for the above procedure?

5. Describe the canine populations that suffer rupture of the cranial cruciate ligament. Compare the rational for treatment of this condition with a lateral fabellotibial suture and that of tibial plateau levelling and the potential complications with these techniques.

P.T.O. for Questions 6, 7 and 8
6. Describe, with illustrations, the vascular supply to the skin of dogs and cats. Briefly explain how this vascular arrangement should be taken into account when undermining skin for reconstructive purposes.

7. You have been asked to perform an ovariohysterectomy on a Doberman pinscher known to have Type I von Willebrand’s disease. The dog is otherwise in excellent general health, and no other systemic disease is present on examination. Outline the pre-operative precautions you might consider to ensure that surgery may proceed without complication.

8. Tube thoracostomy is important in the management of many intra-thoracic surgical diseases. Discuss:

   a. The components of a tube thoracostomy.
   b. The ideal chest tube.
   c. Surgical placement of a chest tube.
   d. Drainage techniques and their indications.
   e. Complications of tube thoracostomy and how to avoid them.
Candidates are required to answer **ONE** question from each section

Allow 40 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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**SECTION A: SURGICAL ANATOMY**

1. **With diagrams**, compare the surgical anatomy of the canine and feline ear, with particular reference to complications associated with a total ear canal and lateral bulla osteotomy.

2. **With the use of diagrams** describe in detail, the anatomy of the canine tarsal joint with particular reference to the injuries incurred by the racing greyhound.

**SECTION B: SURGICAL PRACTICE**

3. Discuss the traditional non-sterile items of the surgical team’s theatre barrier clothing in the context of minimising wound infection risks.

4. An 8 year-old FS Golden Retriever is presented to you with an incidental finding of a 4 cms subcutaneous swelling on the mid-right flank. Discuss the steps involved in investigating this swelling and how you would apply the principles of surgical oncology to your workup and treatment of this swelling if a soft tissue sarcoma is diagnosed.

*P.T.O. for Section C
Questions 5 and 6*
5. Ben is a 6 year-old MN English Springer Spaniel. He has been presented to you for investigation of dyspnoea, which has been slowly progressive over the last 5 days. On examination, he is ambulatory, but quiet, with an obvious increase in respiratory rate and effort. His heart rate is 152 bpm, his respiratory rate is 60, and his rectal temperature is 39.9ºC (103.8ºF). The thorax is dull on auscultation bilaterally, and percussion is reduced. Heart sounds are muffled, but the rate is synchronous and regular. Abdominal palpation is unremarkable. Mucous membranes are pale pink, with CRT 1sec. Ben is admitted for further examination. The results of his in-house blood work are provided below:

<table>
<thead>
<tr>
<th>TEST</th>
<th>Result SI value</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCT</td>
<td>40 %</td>
<td>37-55</td>
</tr>
<tr>
<td>HGB</td>
<td>13.2 g/dl</td>
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</tr>
<tr>
<td>WBC</td>
<td>21.4 10^9/l</td>
<td>6-16.9</td>
</tr>
<tr>
<td>GRANS</td>
<td>17.1 10^9/l</td>
<td>3.3-12</td>
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<tr>
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<td>80 %</td>
<td>0-0</td>
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<tr>
<td>L/M</td>
<td>4.3 10^9/l</td>
<td>1.1-6.3</td>
</tr>
<tr>
<td>% L/M</td>
<td>20 %</td>
<td>0-0</td>
</tr>
<tr>
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<td>175-500</td>
</tr>
<tr>
<td>Alb</td>
<td>18 g/dl</td>
<td>27-38</td>
</tr>
<tr>
<td>AlkP</td>
<td>111 U/l</td>
<td>23-212</td>
</tr>
<tr>
<td>Alt</td>
<td>10 U/l</td>
<td>10-100</td>
</tr>
<tr>
<td>Amyl</td>
<td>1016 U/l</td>
<td>500-1500</td>
</tr>
<tr>
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<tr>
<td>Ca</td>
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<td>1.98-3</td>
</tr>
<tr>
<td>Chol</td>
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<td>2.84-8.27</td>
</tr>
<tr>
<td>Crea</td>
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<td>44-159</td>
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<td>4.28-6.94</td>
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<tr>
<td>Phos</td>
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<td>0.81-2.19</td>
</tr>
<tr>
<td>TBl</td>
<td>&lt; 2 umol/l</td>
<td>0-15</td>
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<tr>
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</tr>
<tr>
<td>Cl</td>
<td>113 mmol/l</td>
<td>109-122</td>
</tr>
</tbody>
</table>

Thoracic radiography confirms a bilateral pleural effusion. Thoracocentesis reveals a foul-smelling cloudy, opaque fluid with a SG of 1.028, protein content of 45 g/l and a high number of degenerate neutrophils on cytology. Large numbers of rod-shaped bacteria are present, with many intracellular bacteria seen.

Outline your clinical management of this case.
6. A 7 years-old entire male German Shepherd Dog is presented. Owner’s complaint is of recent reluctance to go for exercise, unwilling to jump into the car, appears in discomfort when passing faeces and resents brushing over the lower back or pelvic region. Recent radiographs taken by a colleague are poorly exposed but appear to show an absence of significant coxofemoral degenerative joint disease.

   a) What differential diagnoses would you reasonably consider for the reported signs?

   b) What methods of investigation would you advise/pursue? Assuming a diagnosis of degenerative lumbosacral stenosis (lumbosacral disease) is made, indicate the findings you are likely to make, the values of the methods of investigation pursued, the management advice given and prognosis.
Candidates are required to answer ALL EIGHT questions

Allow 15 minutes per question.

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1. Briefly describe, including a diagram, the mechanism of primary fracture union. What factors are necessary to achieve this type of bone healing and what types of fracture fixation would achieve it?

2. a) Briefly, what criteria would you use in choosing a local client owned dog as a potential blood donor?
   b) List FIVE non-immunological transfusion reactions that can occur.

3. a) What are the indications for temporary tracheotomy?
   b) What are the THREE accepted options for the temporary tracheotomy incision? List ONE advantage and ONE disadvantage for each technique.
   c) What are the TWO main considerations regarding tube selection and placement that are required to avoid damaging the mucosa or cartilage?
   d) List THREE aspects of management of a temporary tracheotomy that need to be considered post operatively.

4. a) List the major factors which determine whether a surgical wound will become infected.
   b) List the classification of surgical wounds according to their degree of contamination and give TWO examples of each.

P.T.O. for Questions 5 - 8
5.  a) Describe, with the aid of diagrams, the methods available to manage luminal disparity when performing an end-to-end anastomosis in the small intestine.

b) What is the function of a serosal patch and when is it indicated?

6. **List THREE** findings that may be discerned from either a single or serial neurological examination(s) that indicate a poor prognosis for a patient with spinal trauma.

   For each example, **outline** how you would demonstrate or recognise this abnormality, and explain why each finding tends to indicate an extremely severe degree of spinal cord injury.

7. A 9 year-old active pet Greyhound is presented with proximal intertarsal subluxation and plantar instability:

   a) What groups of dogs typically suffer from this problem?

   b) **List** the management options available for this condition. Indicate your order of preference of these options if considered for the above patient. Justify by providing the pros and cons of each of the options you listed.

THE ROYAL COLLEGE OF VETERINARY SURGEONS

CERTIFICATE IN SMALL ANIMAL SURGERY

TUESDAY 26 JULY 2005

PAPER II

(2 hours)

Candidates are required to answer ONE question from each section

Allow 40 minutes per question.

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

_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._

SECTION A: SURGICAL ANATOMY

1. Describe, with the aid of diagrams, the surgical anatomy of the liver and biliary tract. Include its structure, relationships to adjacent organs and vascular supply.

2. Describe, with the aid of diagrams, the basic functional anatomy of the elbow joint. Outline how this knowledge of elbow anatomy can assist in your clinical management of a complete elbow luxation in a dog. Your answer should demonstrate an understanding of:

   i) the frequency, aetiology and clinical presentation of the condition,
   ii) how to perform a closed reduction and
   iii) how to assess the stability of the elbow following reduction.

SECTION B: SURGICAL PRACTICE

3. Discuss the principles of a biological approach to repair of complex fractures (biological osteosynthesis). Discuss fixation techniques which apply these principles to treatment of a comminuted femoral fracture.

P.T.O. for Questions 4 and 5
4. A 4 year-old, 9 kg terrier bitch is presented for assessment. Her owners describe that although she has remained bright and alert she has been restless, uncomfortable and inappetent for 24 hours. She was mated 64 days ago; this mating was planned. A positive pregnancy diagnosis was made at 28 days post mating. Her owners consider themselves to be experienced dog breeders and they are concerned that the bitch is suffering dystocia.

a) Describe your full assessment of this patient and the foetuses, and how your interpretation of these findings would influence your decision in the management of this case.

b) Your investigations confirm dystocia associated with foetal malpresentation that is not amenable to manipulation. Describe your concerns regarding anaesthetising this patient for caesarean and include any measures that you would take to reduce the possible associated complications.

SECTION C: SURGICAL INVESTIGATION

5. An 8 year-old 35 kg female neutered (FN) Old English Sheep Dog has presented to you as an emergency. The dog is weakly ambulatory, with discernable abdominal distension. The heart rate is 156 bpm, with a slightly elevated respiratory rate (30 rpm). An occasional pulse deficit is detected. Her mucous membranes are pale. The owners reported that the dog appeared to be in ‘excellent health’ 24 hours previously, but had become progressively lethargic during the day. The dog had been with the owners throughout this period, and no traumatic event was known.

a) What are your differential diagnoses for this presentation?

b) Outline how you would continue to investigate this case. Provide sufficient detail in your answer to demonstrate your understanding of the role of the diagnostic tests performed to distinguish the possible differential diagnoses for this presentation.

c) For TWO of your differentials, what prognostic advice would you offer the clients?

P.T.O. for Question 6
6. A Rottweiler of approximately 10 months of age is presented with significant left hind limb lameness. The dog has been recently acquired from a rescue society and no previous history is available. Clinical examination reveals ipsilateral stifle region enlargement.

a) Provide a differential list for the conditions you consider likely to cause the observed stifle changes.

b) **List** the techniques you consider might be of use in investigating such a case. Place them in the order that you are likely to perform them. Should you consider it appropriate, some techniques can be grouped together.

c) By combining these **TWO** lists, produce a flow diagram demonstrating your procedure for investigating this case. Where an investigatory technique may provide a diagnosis or a high index of suspicion for a condition being present, **briefly** indicate what findings would result in such a diagnosis being supported.
Candidates are required to answer ALL EIGHT questions

Allow 15 minutes per question.

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1. a. What does a lateral wall resection achieve?
   b. Briefly describe the technique.
   c. List the possible reasons why a lateral wall resection may fail.

2. Cyclooxygenase inhibitors are commonly used in the management of osteoarthritis in the dog. Discuss the rationale behind their use, and the adverse side effects that can arise.

3. a. Briefly describe the technique for the placement and management of a thoracostomy tube in a 10kg dog.
   b. List FIVE possible complications associated with placement and management of a thoracostomy tube.

4. Describe the peri-operative concerns for surgical management of a patient with a disorder of the hepatobiliary tract and associated blood vessels.

5. a. Briefly describe the principles of biologic osteosynthesis in the repair of comminuted fractures.
   b. Briefly describe stress protection, and TWO ways in which it can be avoided.

P.T.O. for Questions 6 - 8
6. a. **List** the synthetic colloids available for the small animal surgery patient.
   
b. Indicate their origin and approximate half life in circulation.

c. What are the potential complications of the use of synthetic colloids?

7. a. Define discospondylitis.

   b. For lumbosacral discospondylitis, **briefly describe** pathophysiology and **list** the clinical signs that may be encountered.

   c. **List** the treatment options that would be considered for L-S discospondylitis and indicate for each when they should be used.

8. **Describe** the factors affecting the strength and stiffness of a linear external fixator and indicate their effects.
SECTION A: SURGICAL ANATOMY

1. a. **With the aid of diagrams**, describe the anatomy of the inguinal rings and associated structures in the bitch.
   
b. With reference to the principles of hernia repair, **describe** the technique for surgical repair of an inguinal hernia in the bitch.

2. a. **Describe**, with the aid of diagrams, the anatomy of the region of the sacrum and the sacroiliac joint with particular concern for trauma to, and surgical management of, injuries to this region.
   
b. **Describe** the dorsal/dorsolateral surgical approach to and surgical techniques for applying lag screws to manage a displaced sacroiliac luxation/fracture.

   **Discuss** the use of lag screws in managing such a problem, the potential iatrogenic risks of this procedure and how to minimise these risks, and alternative management options.
SECTION B: SURGICAL PRACTICE

3. An 8 year-old entire male dog presents with a several weeks history of dysuria. Over the last 48 hours the dog has become depressed and vomited twice. The owners are unsure how much urine the dog has passed recently.

a. Give a differential diagnosis list for this case.

b. Describe in detail your investigation of this case in the order you would proceed in practice.

c. Comment on what information each stage of the investigation provides.

4. a. What signalment and history would you expect for an animal with an appendicular Osteosarcoma?

b. What investigative steps would enable you to make a definitive diagnosis of Osteosarcoma in general practice? Describe briefly how you would perform each step, and what the findings would be for a case of Osteosarcoma.

c. List any additional investigative steps that could be taken with more specialist equipment once a diagnosis of osteosarcoma is made, and what further information could be gained.

SECTION C: SURGICAL INVESTIGATION

5. List the methods of haemostasis which may be used intra-operatively and give ONE practical example of each.

Briefly describe how the cause of abnormal bleeding in the post operative period may be investigated.

6. A cat is presented to you two days after an abrasion of the dorsal metacarpophalyngeal region of the left paw, resulting in extensive skin loss.

a. Describe initial case management with regard to wound dressings, including a discussion of the types and properties of the dressing materials available and those you would use.

b. Following development of a healthy granulation tissue bed, you elect to close the wound using a free skin graft:

   i. list alternative options and give ONE disadvantage of each

   ii.) briefly discuss free skin grafts.

c. Briefly discuss the appropriate use of antibiotics in this case.
THE ROYAL COLLEGE OF VETERINARY SURGEONS
CERTIFICATE IN SMALL ANIMAL SURGERY

TUESDAY 24 JULY 2007

PAPER I
(2 hours)

Candidates are required to answer ALL EIGHT questions

Allow 15 minutes per question.

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

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

1. A ten year-old neutered male Siamese cat is presented with plantigrade hind limb posture/gait.
   a) Provide a LIST of differential diagnoses.
   b) Indicate, in order of application, methods of investigation of the problem and likely findings for the conditions included on your differential diagnoses LIST.

2. Describe in ONE sentence the “Tension Band Wire Principle”.
   LIST SIX fractures or osteotomies where tension band wiring is appropriate for internal fixation.
   Briefly describe the tension band wiring technique.

3. a) Outline the classification of open fractures giving a typical example for each class.
   b) Briefly describe the impact of each class of open fracture on the treatment of that fracture.

4. Describe the lesions that may be seen using arthroscopy in dogs with elbow dysplasia.
   Explain the pathogenesis of the lesions with respect to the disproportionate growth hypothesis of elbow dysplasia.

P.T.O. for QUESTIONS 5 - 8
5. **Outline** the important principles behind the use of drains in traumatic and elective surgical wounds.

   **Briefly** describe the different types of drains, and the rationale for choosing between them.

6. **Briefly** describe the investigations that you would perform in a neutered male cat with recurrent dysuria and stranguria, and **LIST** the reasons for performing the tests you describe.

7. **LIST** the indications and contraindications for assisted feeding using a naso-oesophageal tube and a gastrostomy tube.

   Describe the advantages and disadvantages of assisted feeding using these tubes.

8. **LIST** the topical haemostatic agents available for use in small animal surgery.

   For each agent describe the mechanism of action, give a clinical example of its use and **LIST** any contraindications or complications associated with its use.
Candidates are required to answer **ONE question from each section**

Allow 40 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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**SECTION A: SURGICAL ANATOMY**

1. Describe, **with the aid of diagrams**, the normal anatomy of the canine diaphragm, including blood supply, innervation and relationship to adjacent organs.

   Describe, **using diagrams**, the different types of diaphragmatic hiatal hernia, clearly indicating for each type how the anatomical relationships of the organs involved have changed.

2. Describe, **with the aid of diagrams**, the bony and ligamentous anatomy of the canine coxo-femoral joint.

   Describe the cranio-lateral approach to the hip for a femoral head and neck excision.

   What surgical modifications of the cranio-lateral approach allow for better dorsal exposure of the hip joint?

**SECTION B: SURGICAL PRACTICE**

3. **Discuss the use of local anaesthetic agents in small animal surgery.**

4. **Discuss the different types, healing and management of long bone fractures in the skeletally immature patient.** Within your answer, identify where, and why, management options and decisions differ from those for skeletally mature patients.

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*P.T.O. FOR SECTION C*
SECTION C: SURGICAL INVESTIGATION

5. A 4 year-old neutered male Labrador is presented for re-examination 72 hours after an enterotomy to remove a mid-jejunal foreign body was performed. The intestine was considered healthy at the time of surgery and the dog’s initial recovery has been uncomplicated. The owners are concerned because the dog is quiet, inappetant and has vomited several times over the last 24 hours.

   a. **LIST** your differential diagnoses for this problem, in approximate **order of likelihood**, given this history.

   b. **Describe** your investigation, explaining how the findings will help you determine the cause of the deterioration and help you stabilise this patient.

   c. For your main differential diagnosis **briefly describe** how you would manage this condition.

6. A 6 year-old working Collie is presented with a progressively worsening right thoracic limb lameness of 3 months’ duration. The lameness improves with strict rest but recurs on resumption of exercise. Pain is elicited on manipulation of the shoulder joint with an absence of pain on examination of the elbow, antebrachium, carpus or digits.

   a. Provide a **LIST** of differential diagnoses.

   b. Discuss how you would investigate this lameness, describing the tests you would perform in the order you would perform them. **Briefly** show how these tests would support or refute the diagnoses on your **LIST** of differential diagnoses.
1. **Briefly discuss** the timing of ovariohysterectomy in the bitch with respect to the following:
   
   (a) in relation to the first oestrus
   
   (b) following oestrus.

2. **List** the surgical options available for the management of traumatic dorsal coxofemoral luxation in the dog. What strategies could be employed to reduce the risk of re-luxation when treating a traumatic dorsal hip luxation in a dog suffering from pre-existing hip dysplasia?

3. **State the actual steps**, in appropriate order, involved in the correct **application** of:
   
   (a) a 3.5mm dynamic compression plate to a simple transverse mid-diaphyseal fracture.
   
   (b) a 2.7mm lag screw

   *(Do not discuss patient management, fracture assessment etc.)*

4. **Briefly discuss** ununited anconeal process under the following headings:
   
   (a) definition
   
   (b) suggested aetiologies
(c) clinical and radiographic findings

(d) reported treatments and outcomes.

5. **List and briefly discuss** the factors you would consider when choosing a suture material for lower urinary tract surgery in the dog. Select a suitable suture material for cystotomy closure in a 7-year-old male neutered miniature Schnauzer with an *E Coli* urinary tract infection.

6. **Draw a schematic diagram** of the anatomy of the inguinal ring in the dog. **List** factors potentially involved in inguinal hernia formation.

7. **Briefly describe** the surgical procedure to perform an arytenoid cartilage lateralisation (laryngeal tieback). **List** potential complications of this procedure.

8. **Briefly describe** the process of primary tendon healing and **list** the factors that might affect healing.

THE ROYAL COLLEGE OF VETERINARY SURGEONS

CERTIFICATE IN SMALL ANIMAL SURGERY

TUESDAY 22 JULY 2008

PAPER II

(2 hours)

Candidates are required to answer **ONE** question from each section
SECTION A: SURGICAL ANATOMY

1. **Describe** the anatomy of the canine patella and its surrounding anatomical structures. What anatomical features are thought to contribute to medial patellar luxation in dogs?

2. **Discuss** the anatomy of the ear and para-aural structures in dogs and cats. Highlight the knowledge of anatomical features that assists the surgeon to perform a total ear canal ablation and lateral bulla osteotomy and relate the anatomy to known complications of this procedure.

P.T.O. for Section B

SECTION B: SURGICAL PRACTICE

3. A 6 year-old, overweight Shetland Sheepdog presents to you with a history of gradual onset lameness of the right fore, over a period of 3 weeks. Examination reveals a palmigrade stance on the right fore, with hyperextension of the carpus, which is also thickened. The carpus is mildly painful on manipulation.

   (a) Discuss your management of this case, under the headings:

   1. most likely pathogenesis
   2. diagnostic investigation
   3. list of treatment options.

   (b) Choose the most appropriate surgical treatment, clearly addressing the significant principles.
4. Discuss the factors involved in the prevention of surgical infections. Identify the specific risk factors and relative risks that have been identified as increasing surgical wound infections in veterinary medicine.

SECTION C: SURGICAL INVESTIGATION

5. A 14 month-old female neutered Labrador Retriever is presented for urinary incontinence. Describe in detail your investigation of this case including the use of imaging modalities. Give a list of your differential diagnoses for this case.

6. A 3 year-old Dachshund is presented with a 12 hour history of sudden onset ataxia progressing to hind limb paresis overnight.
   a) Describe your clinical examination with specific reference to:
      1) how you would localise this lesion
      2) what prognostic indicators you would use.
   b) Describe how you would further investigate this case to make a diagnosis.
   c) Assuming a diagnosis of Intervertebral Disc disease, briefly describe medical versus surgical options for treatment of this case. Include in your answer the pros and cons of each treatment.
Candidates are required to answer **ALL EIGHT** questions

Allow 15 minutes per question.

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

*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*

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1. **Compare the advantages and disadvantages of using:**
   
   (a) a naso-oesophageal tube
   
   (b) an oesophagostomy tube

   *in the feeding of an inappetant cat post-subtotal colectomy.*

2. **List** the potential complications associated with thyroid carcinoma excision in the dog. *For each one, briefly explain why the complication occurs.*

3. **Name and briefly describe** the method of action of the sterilization indicators which are commonly available. *Briefly comment on the effectiveness of the different types.*

4. **Outline** the initial treatment (first 24 hours) for a dog with second degree partial thickness thermal burns over 20% of his total body surface area.

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**P.T.O. for Questions 5 – 8**
5. (a) **List** the principles governing the appropriate use of cerclage wire as an aid to fracture stabilisation.

(b) **Briefly describe** the effect loose cerclage wire is likely to have on fracture healing.

(c) **Briefly describe using an annotated diagram** the principle behind compression achieved when the pin and tension band technique is successfully applied to an avulsion fracture.

6. (a) **List** the differences in the **design** of implants for cemented and cementless total hip replacement.

(b) **List** the potential **advantages and disadvantages** including short and long term complications for:

(i) cemented

(ii) cementless systems.

7. (a) **List** the AO principles of fracture management.

(b) **State the precise steps** involved when performing an operation to stabilise a comminuted diaphyseal femoral fracture in a 3 year-old Labrador retriever using a plate-rod combination.

8. (a) **List TWO** aims of a gastropexy.

(b) **Briefly describe** the technique for performing a belt-loop gastropexy.

(c) **List FOUR** further gastropexy techniques.

(d) **List any FOUR** complications for any gastropexy procedure.
This Paper is in three Sections, A, B and C and candidates are required to answer ONE question from each section

Allow 40 minutes per question.

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

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

SECTION A: SURGICAL ANATOMY

1. Describe, with the aid of clear, well-labelled diagrams, the normal and abnormal abdominal anatomy relevant to:

   (a) Identifying a single, extra-hepatic porto-caval shunt at exploratory surgery in a Yorkshire Terrier.

   (b) Performing a portovenogram in this animal.

2. (a) Describe with the use of diagrams the anatomical landmarks used to determine the correct placement of a needle into a shoulder joint in order to facilitate positive contrast arthrography.

   (b) Describe with the use of diagrams, the relevant anatomy and surgical approach to retrieve an in situ osteochondrosis dissecans lesion of the humeral head.

   (c) Give ONE advantage and ONE disadvantage for the approach you have described in (b).

   (d) With the use of a diagram, illustrate the cellular anatomy of the epiphyseal cartilage in a normal joint during the growth phase and one in which an osteochondrosis dissecans lesion has occurred.

P.T.O. for Section B
3. A six year-old Labrador retriever presents with a rapidly growing 2 cm raised smooth mass over the cranial aspect of the distal antebrachium which is irritating the dog. A fine needle aspirate is consistent with a mast cell tumour. The owner reports some episodes of vomiting over the previous 3 weeks.

(a) **Describe** your diagnostic work up for this case.

(b) **Discuss** the treatment options available.

(c) If the dog is taken to theatre **describe** what additions may be necessary to the anaesthetic protocol and which drugs should be avoided. **Comment** on site preparation.

(d) After surgical excision the histopathological report comes back with description of a grade 2 mast cell tumour with dirty margins. The local lymph node was clear. **Discuss** the options available to the owner.

4. You are due to see a 30 kg Labrador retriever that underwent a TPLO for management of cranial cruciate ligament disease 2 weeks ago.

(a) What presenting signs might be seen with development of a postoperative joint infection in this case?

(b) **Discuss** the risk factors associated with the development of infection following surgical management of cranial cruciate ligament disease.

(c) **Describe** the steps you would take and the interpretation of any tests in reaching a definitive diagnosis in this case.

(d) **Describe** the options that you have for managing a postoperative joint infection in this case.

_P.T.O. for Section C_
5. A seven year-old female Doberman Pinscher is presented to you with a 6 week history of low head carriage and a wide based pelvic limb stance. The owner also reports episodes of intermittent forelimb lameness over the same period. On examination discomfort is elicited on extension of the neck but pain is otherwise not a feature.

(a) **Describe** how you would perform a neurological examination in this case, and indicate how the lesion could be localised from a neuro-anatomical basis.

(b) Your neurological examination reveals proprioceptive deficits affecting all four limbs. Pelvic limb segmental spinal reflexes are unremarkable but forelimb reflexes appear diminished. Give a **list** of differential diagnoses.

(c) **Describe in detail** how you would investigate this case. Assuming a diagnosis of a C6-7 disc protrusion, indicate how your diagnostic findings may influence your choice of treatment.

6. **Compare and contrast** middle ear disease (otitis media) in the dog and cat. **Use clear, well-labelled diagrams**, where appropriate. Consider the following in your answer:

(a) Aetiology.

(b) Presentation.

(c) Diagnostic investigations.

(d) Medical and surgical treatment.