

Diploma in Equine Internal Medicine

Please view the general documents to obtain copies of:

The stages of enrolment information.

- B1:** Guidance Notes for candidates on general requirements.
- B3:** General Guidance Notes on preparation for a Dissertation.
- E1:** Application form E.1 - for enrolment and initial approval of experience.
- H:** Role of Advisers to Certificate Candidates.

The following papers are attached:

- B2:** Specific requirements for the Diplomas.
- C:** Syllabus and Commentary for the Diplomas.
- D:** Reading lists – there are none for the Diplomas – please refer to Certificate Lists.
- E:** E.1(a), E.1(b), E.2
 - E.1(a)** - for specific details of practice/centre
 - E.1(b)** - for proposed title for Dissertation
 - E.2** - for final approval of experience and for permission to submit an entry to the examination
- F:** List of Techniques and Procedures - this should be countersigned by your Adviser/or Senior Colleague and submitted prior to entry to the examination and at the latest at the time for final approval of experience.
- G:** List of Advisers.

A copy of the most recent Examination Question Paper is enclosed for your information.

January 2010

The Royal College of Veterinary Surgeons
Specialisation and Further Education

THE DIPLOMA IN EQUINE ORTHOPAEDICS SURGERY
THE DIPLOMA IN EQUINE SOFT TISSUE SURGERY
THE DIPLOMA IN EQUINE INTERNAL MEDICINE
THE DIPLOMA IN EQUINE STUD MEDICINE

SPECIFIC GUIDANCE NOTES FOR CANDIDATES

[These notes must be read in conjunction with the B1 General Guidance Notes to Candidates]

MEMBERSHIP OF THE ROYAL COLLEGE OF VETERINARY SURGEONS

1. It is a requirement of the Equine Board that ALL candidates entering for these Diplomas are Members of the Royal College of Veterinary Surgeons (MsRCVS).

SPECIFIC EXPERIENCE

2. Candidates entering for the examination must have substantial involvement in the appropriate equine field.
3. Substantial involvement is defined as a veterinary surgeon gaining experience exclusively in an equine practice (or a mixed practice with a very large component of equine work) since graduation, who might be able to enter for the Diploma examination four-five years after graduation. However, it is considered that this would be exceptional, and that most candidates would take five-six years or longer from graduation. A substantial degree of participation, as defined by the Board in the subject concerned must include at least three calendar years of substantial intensive experience acceptable to the Board.
4. It is recommended that some association with Veterinary Schools or the Animal Health Trust through an appointed adviser is almost a necessity, especially for those whose circumstances e.g. a practice situation, do not normally allow interchange of information, or availability of literature etc., particularly in 'basic science' areas.

5. No period of experience can be offered to meet the requirements for more than one Certificate/Diploma and, preferably, applicants should be studying for one qualification only, at a time, at Diploma level.
6. Candidates may gain experience for a Diploma:
 - (a) at an approved centre for their subject
or
 - (b) at an approved practice.

Approved Centre Route

7. Candidates following an approved training programme at an approved centre will not be permitted to enter for the examination until they have been Members of the College or held an approved veterinary qualification for **at least four years** and are required to offer experience in the subject over **at least four years**.
8. **Applications for approval of a Centre must be made directly by the Centre to the RCVS and not by the candidate. An application form can be obtained from the RCVS.**

Approved Practice Route

9. Candidates following the approved practice route will not be permitted to enter for the examination until they have been Members of the College or held an approved veterinary qualification for **at least five years** and are required to offer experience in the subject over either:
 - (a) **at least five years including 200 days spent at an approved centre,**
OR
 - (b) **at least six years** if gaining experience solely at an approved practice.
10. **There is no separate application form for approved practice other than the candidate applications forms enclosed within this Information Pack. Practices are approved for each individual candidate.**
11. The Board has discretion to increase the requirements for experience for any candidate above the minimum specified if it is considered to benefit the candidate.
12. Experience accepted for the Certificate will count towards the experience required for the Diploma, at the discretion of the Board, whether the candidate is at an approved centre or an approved practice.

FINAL APPROVAL OF EXPERIENCE/ ADDITIONAL SUBMITTED WORK

Certification of techniques and procedures

13. At the time of application for FINAL approval of experience, candidates will be issued with a list of certain techniques and procedures in which the candidate's competence must be certified by his adviser, or a senior colleague in the practice or centre where he is or has been employed. Those candidates who self-certify **MUST** have the list countersigned by their adviser. The certified list must be submitted to the RCVS by **1 November**.

THE EXAMINATION

14. The examination consists of three Sections:
- (a) a Dissertation OR 5 Published Papers
 - (b) TWO x 3 hour written papers, and
 - (c) a clinical, oral and practical examination.

SUBMITTED WORK FOR EXAMINATION

Dissertation OR Five published papers

15. A candidate's choice of subject for a dissertation must have been approved by the Board, and it is obviously of advantage to the candidate to have as much time as possible to write the dissertation, having obtained approval of the subject. **Alternatively**, the titles of a minimum of five published papers (accepted or submitted) for publication must also have been approved by the Board. It is strongly recommended that a candidate should seek advice from their advisers prior to application to the Board. For these reasons, application for approval of subject should be made not later than **1 November** in the year prior to that in which it is planned to take the examination. Candidates should note that papers must have been published or accepted for publication at the time of submission.

Dissertation

16. Application on Form E1B must be made for approval of the proposed subject of the dissertation by **1 November**. No exemption is permitted.
17. Candidates may **not** use all or part of the work prepared and submitted for another postgraduate qualification including Diploma of Fellowship, as all or part of their dissertation for an RCVS Diploma. However, publications in peer reviewed journals **arising from** any postgraduate degree, for example, a PhD or Masters thesis, could

be used towards a subsequent Diploma if publications of this type form part of the Diploma requirements and are appropriate to the discipline.

18. **Three copies** of the dissertation are required.

Candidates are also asked to submit an electronic version of their submitted work together with their hard copy. This will be retained at RCVS unless requested by the examiners for purposes such as checking the word count. The electronic version should be Microsoft Office 2000 or XP compatible and should be submitted on either CD or floppy disc/s. Please ensure that the disks are easily identifiable by placing them in an envelope with your name, and 'Electronic version of submitted work for 'Diploma in Equine Internal Medicine' marked clearly on the front.

Dissertation Word Count

19. The dissertation should be of **not more than 10,000 words excluding the lists of references etc.** based on original material and data and incorporating personal observations, on a subject approved by the Board. The dissertation may be based on a retrospective study of a series of clinical cases.

20. A word count must be shown on the front cover of the Dissertation.

Five Published Papers

21. Application on Form E1B must be made for approval of the proposed subject of the Published Papers by **1 November**. No exemption is permitted.

22. As an alternative to the Dissertation, a candidate may submit **FIVE papers published in refereed journals** which have not previously been submitted for another postgraduate qualification. These should consist of a **minimum of TWO Principal Author papers and THREE other papers in which the candidate has had a substantial input.**

23. **Three copies** of the published papers are required, and should be presented bound.

24. The five papers should have a common or linked theme with an 'Introductory Chapter' to be presented with the published papers in related areas reviewing the literature relating to the horse and the relationship between this and the published paper AND a 'Concluding Chapter' discussing the importance of the body of work presented.

25. The candidate may elect to include additional data related to but not included in the five papers.

26. Only papers published, or accepted for publication at the time of submission, in a refereed journal may be used. If a paper is submitted for examination that has not already been published, then it **MUST** be accompanied by a letter from the Editor of the refereed journal confirming final acceptance of the paper for publication. A paper that is accepted for publication subject to minor changes being made is NOT ACCEPTABLE for the examinations.
27. A review article is acceptable as ONE of the published papers providing at least ONE of the other published papers is original work. Short communications, such as brief case reports, are not acceptable. Reviews of a series of cases are acceptable.
28. If any multi-author papers are to be included, these must be accompanied by a statement from the co-authors that the senior author (the candidate) was responsible for the majority of the work. The following statement should be included at the front of each copy of the published papers.

Published papers submitted in part fulfilment of the requirements for the RCVS Diploma in.....by (name of candidate).

Acknowledgements are due to: name.....for (description of assistance given).

Grading Scheme

29. The submitted work will be graded "Good Pass"; "Pass" or "Fail":
- **Good Pass** - (60% or over) - the work will be lodged in the RCVS Library as a suitable example for future candidates.
 - **Pass** (defined as 50%) – The work is adequate to enable the candidate to proceed to the remaining sections of the examination, but the submitted work may need to be revised by the date of the clinical, oral and practical for lodging in the Library if the candidate is successful in the examination as a whole.
 - **Fail** (below 50%) – the work is not adequate to enable a candidate to proceed to the remaining sections of the examination for the year in question.

WRITTEN EXAMINATION

30. Candidates are warned that answers should be given specifically and that illegible handwriting may result in examiners being unable to award marks for information which candidates intended to convey. In addition, the examiners will take into consideration the candidate's spelling and whether or not the question has been answered in the form requested.

Format

31. This Section consists of 2 three-hour written papers.
- (a) **Paper I** - will cover the basic sciences as applicable to the subject; the paper will comprise a choice of 2 essay-type questions (1½ hours) and 10 compulsory short-answer questions (1½ hours);
 - (b) **Paper II** - will cover the clinical aspects of the subject, and will consist of 6 questions of which 5 are to be answered.

Marks Scheme for the Written Papers

32. The marks for the written papers are broken down as follows:
- Paper I** will be marked out of 50 marks
 - Paper II** will be marked out of 50 marks
 - Total Mark for this Section (b) = 100 marks

CLINICAL, ORAL AND PRACTICAL EXAMINATION

Format

33. The clinical, oral and practical examination will extend over approximately 3 hours for each candidate. Candidates should normally attend equipped to carry out clinical examinations, but advice will be given prior to the examination. Questions may be asked in relation to the Dissertation submitted for Section A.
34. There will be an objective practical and this may involve examination of live animals;
- a 'steepchase' – examination of radiographs, ultra-sonographic images, scintigraphic images, videos for discussion;
 - an oral examination focussing on basic science, the submitted work and finally clinical issues.

Marks Scheme

35. The breakdown of marks for the clinical/oral/practical is as follows:
- Clinical: marked out of 50
 - Practical: marked out of 25
 - Oral: marked out of 25
- TOTAL Mark for Section (c) = 100. nb. Candidates **MUST** achieve 50% of the marks for each part, in order to pass this section of the examination.

SYLLABUS AND READING LIST

36. A syllabus, with a brief commentary, and reading lists for the Certificates, which were frozen at November 2002, are provided for reference. There are no separate reading lists for the Diplomas as candidates at this level are expected to be familiar with all literature in the area of their elective and most particularly so in the topic of their dissertation or submitted papers. Candidates are expected to do their own research and make use of the RCVS Library and Information Service.

ADVISERS

37. Candidates are urged to seek advice from their advisers. Candidates should approach someone listed in the lists of Diplomates or Specialists in the RCVS Register of Members to seek their agreement to act in this capacity. The adviser should signify their willingness to act by signing the enrolment application Form E1. Alternatively, if a candidate has been unable to find an adviser, the Board will make a suggestion.
38. It is stressed that it is for the candidate to make contact with their adviser throughout the preparations for the examination and to travel to meet him if necessary. For those candidates whose circumstances, e.g. a practice situation, do not normally allow interchange of information, availability of literature etc, particularly in 'Basic Science' areas, it is necessary for some association with a Veterinary School or The Animal Health Trust, through an appointed adviser. It is especially recommended for candidates for Equine Surgery (Orthopaedics) that they seek advice both from a clinical adviser and a specialist involved in research work related to the musculoskeletal system. Advisers will advise a candidate on the suitability of material for the dissertation and **MUST** certify on the declaration that they have approved the dissertation prior to submission for the examination.
39. It has been the experience of the Examiners that, candidates who do not liaise with their advisers well in advance of their entry to the examination, are more likely to be unsuccessful in the examination.

40. Advisers will not be held responsible for the candidate's performance in an examination.

ATTENDANCE AT SHORT COURSES

41. The Board is not making attendance at any particular course or courses compulsory in terms of the byelaws.

MEMBERSHIP OF VETERINARY ASSOCIATIONS/SOCIETIES

42. Enrolled candidates are encouraged to become a Member of the British Equine Veterinary Association and attend meetings.

ABBREVIATION FOR QUALIFICATION

43. Successful candidates should use the following abbreviations after their names in the RCVS Registers of Members, and on practice plates, stationery, etc.. Certificate holders who obtain the Diploma in the same subject cease to use the Certificate abbreviation:

- | | |
|--|----------------|
| - Diploma in Equine Orthopaedics | - DEO |
| - Diploma in Equine Soft Tissue Surgery | - DESTS |
| - Diploma in Equine Internal Medicine | - DEIM |
| - Diploma in Equine Stud Medicine | - DESM |

Originated December 1993

Revised: July 1994, June 1995, July 1996, February 1997, August 1998, August 1999, July 2000, April 2001, Nov 2001,

Nov 2002. Nov 2003. No Amendments 2004. Amended Nov. 2005. Amended Nov. 2006.

GENERAL GUIDANCE NOTES FOR DIPLOMA CANDIDATES ON THE PREPARATION OF A DISSERTATION

B.3

The dissertation should be presented in the normal format for a scientific article unless there are strong reasons why this is not appropriate: any different format should be approved by the supervisor before the first draft is produced.

The normal sections are:

Introduction

This should include a brief review of the literature on the subject giving appropriate references. References may be cited in one of two ways e.g. 'Smith and Brown (1993) found that parasites increased in July' or 'Previous studies have shown that parasites increased in July (Smith and Brown, 1993)'.

It should be a critical review to indicate what is already known and where the gaps are in our knowledge which you have set out to remove. At the end of the introduction, it should be possible to say ' In the light of the literature I have reviewed, the aims of this study are to plug the following gaps by carrying out the following work' or something to the same effect!

Materials and methods

This should include an account of the animals or flocks or specimens used and the experimental methods and techniques you have used in order to obtain your results. There is no need to give details of well-known techniques but it is important that a reader should be able to repeat the work and certainly be able to decide on the reliability of your techniques, which obviously affect the value of your results. If you use techniques developed by other people, you should refer to a book or journal where the details are published.

Results

There should be a logical description of what you have found by the techniques you have described. This section may benefit by the inclusion of tables, graphs, figures or photographs which should have captions which are sufficiently self-explanatory to stand alone, though they should also be referred to in the appropriate part of the text. This section should not contain any comments on the significance of the results or to any inconsistencies or problems encountered.

Discussion

This section should contain a critical discussion of the significance of the results and of the extent to which the aims described in the introduction have been achieved. It should also relate the new findings to previous work and it may therefore be necessary to quote again some of the papers cited in the introduction but for a different purpose. In the introduction, it was to show where the gaps were, here it is to show how your results agree, disagree or add to the previous work. Any conclusions or new ways of tackling the problem should be indicated here.

References

Unfortunately, there are a number of different ways used by different journals to list references in this list, so it isn't possible to lay down the one correct way! Since you might also wish to write your work as a paper for a journal, however, it is best to use a style which can be adapted to any journal, which means that the reference should be cited in full as follows:

Smith, M. J. and Jones, W. B. (1993). The seasonal fluctuations in parasite numbers in sheep in Britain. *Veterinary Record*, 134, 123 - 134.

A very careful check should be made to ensure that the references in the text are exactly the same as those in the list. (Trying this out on articles in any journal will give you a good idea as to the care with which the articles are edited by the authors or the journal).

Acknowledgements

This section gives you the opportunity to thank anyone who has helped with the work or the dissertation.

Appendices

If there is a great deal of detailed data such as laboratory findings, it may be helpful to place most of it in appendices with only summaries such as mean values in the results section.

*Prepared by Professor M J Clarkson
April 1997*

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ROYAL COLLEGE OF VETERINARY SURGEONS

EQUINE BOARD

C

DIPLOMA IN EQUINE INTERNAL MEDICINE

COMMENTARY

The syllabus for the written/practical and oral examination in Equine Internal Medicine focuses in great detail on those aspects of veterinary science related to this discipline.

Candidates are expected to have a detailed, up-to-date theoretical knowledge and understanding of the subject derived from reading specialist textbooks, relevant journals and attendance at meetings. In addition, they must demonstrate a very high level of practical knowledge and skills derived from a substantial involvement in the discipline in a specialist equine practice or veterinary centre. The level of knowledge and expertise must be that of someone who will be accepted nationally, and probable internationally, as an expert in the discipline.

The dissertation must embody a report of a clinical or experimental study, together with a critical review of the literature and a discussion of the relevance of the study to previously published work. It must be of a standard acceptable for publication in a refereed journal.

SYLLABUS

1. GENERAL

- a. General knowledge of the equine industry in the UK, breeds of horses, general management of the stabled horse and the horse at grass.
- b. Manifestations of clinical disease; clinical problems, their pathophysiology and diagnostic approach.
- c. Clinical care; principles and techniques applicable to practice.
- d. Clinical pathology; techniques for sampling and sample handling. Interpretation of haematological, biochemical and endocrine tests. Principles of application of diagnostic microbiology and cytology. Ancillary diagnostic tests.
- e. Diagnostic imaging; principles and applications of the common imaging techniques (radiology, ultrasonography, endoscopy). Selection and limitations of procedures used for diagnosis.
- f. Stable vices.
- g. Physical and chemical restraint.

- h. Welfare; the normal behaviour of horses and assessment of abnormal behaviour patterns. The assessment of pain, suffering and stress. The basic needs of the horse. Welfare aspects of stabling, transportation, competition and general care of horses. Legislation affecting the welfare of horses.

2. DISEASES OF BODY SYSTEMS

- a. The Alimentary System
Normal structure and function of the alimentary tract. The diagnosis and treatment of diseases of the oral cavity, oesophagus, stomach, small intestine and peritoneal cavity. The pathogenesis and treatment of endotoxaemia. Fluid and electrolyte therapy for gastrointestinal disorders. The differential diagnosis and assessment of conditions causing colic, diarrhoea, malabsorption and dysphagia. The internal parasites and their effects on health.
- b. The Hepatobiliary System
Normal structure and function of the liver and biliary system. The pathophysiology of liver disease, liver failure and hepatic encephalopathy. The diagnosis and treatment of hepatobiliary diseases. The differential diagnosis and assessment of jaundice.
- c. The Respiratory System
Normal structure and function of the respiratory tract and pleural cavity. The diagnosis and treatment of diseases of the nasal cavity, paranasal sinuses, nasopharynx, guttural pouches, larynx, trachea, bronchial tree, lungs and pleural cavity. The diagnosis and treatment of viral, bacterial and parasitic infections of the respiratory tract. The differential diagnosis and assessment of conditions causing coughing, nasal discharge, dyspnoea and adventitious respiratory noises. The control of infectious respiratory diseases, and use of vaccines and consideration of Jockey Club regulations. The aerobiology of stables, and effects of environmental pollutants of respiratory health. Inhalational therapies.
- d. The Cardiovascular System
Normal structure and function of the heart and vascular system. The pathophysiology of cardiac disease and cardiac failure. The diagnosis and treatment of congenital cardiovascular disease, valvular disease, myocardial disease, arrhythmias, pericardial disease, and vascular disease. The differential diagnosis and assessment of cardiac murmurs and arrhythmias.
- e. The Urinary System
Normal structure and function of the kidneys and urinary tract. The pathogenesis and treatment of acute and chronic renal failure, The diagnosis and treatment of diseases of the kidneys, ureters, bladder and urethra. The differential diagnosis and assessment of dysuria, urinary incontinence, discoloured urine and polydipsia/polyuria.
- f. The Haematopoietic and Haemolymphatic Systems
Normal structure and function of the spleen, thymus, bone marrow and lymphatic system. Normal and abnormal haematopoiesis. Normal and abnormal immune responses including hypersensitivity reactions and autoimmunity. Normal and

- abnormal haemostasis. The diagnosis and treatment of anaemia, thrombocytopenia, purpura, vasculitis and lymphangitis. The clinical manifestations and diagnosis of lymphosarcoma and leukaemia. Immunodeficiency states, their diagnosis and treatment.
- g. The Nervous System
Normal structure and function of the central nervous system, peripheral nervous system and autonomic nervous system. The diagnosis and treatment of diseases of the cerebrum, brainstem and cranial nerves, cerebellum, spinal cord, cauda equina and peripheral nerves. The differential diagnosis and treatment of diseases causing behavioural disturbances and ataxia. The diagnosis and treatment of meningitis, encephalitis, rabies, botulism, tetanus, wobbler disease and other neuropathies.
- h. The Eye
Normal structure and function of the eye and periocular structures. The diagnosis and treatment of common diseases of the eye and periocular tissues. The differential diagnosis and assessment of ocular discharge, ocular pain and blindness.
- i. The Musculoskeletal System
Normal structure and function of the musculoskeletal system. The pathophysiology and diagnosis of diseases of bones, joints, connective tissue and muscle. The treatment of diseases of the musculoskeletal system with particular emphases on infective processes, laminitis, myopathies and metabolic diseases.
- j. The Endocrine System
Normal structure and function of the endocrine tissues. Control and function of the major hormones. The diagnosis and treatment of diseases of the pituitary gland, adrenal glands, thyroid glands, parathyroids and pancreas.
- k. The Skin
Normal structure and function of the skin. The diagnosis and treatment of skin diseases associated with hypersensitivity, autoimmunity, bacterial, viral, fungal and parasitic infections, neoplasia and other common conditions. The differential diagnosis and assessment of pruritus, hair loss and skin nodules.
- l. The Male and Female Reproductive Systems
Normal structure and function of the male and female genital organs. General knowledge of the common diseases affection the genital organs. Methods of pregnancy diagnosis.

3. MANIFESTATIONS OF SYSTEMIC DISEASE

The control of body temperature. Conditions resulting in elevation of body temperature and fever. The differential diagnosis and investigation of fever of unknown origin. The differential diagnosis and investigation of weight loss, obesity and pica.

4. PERFORMANCE PROBLEMS

The differential diagnosis and investigation of exercise intolerance and poor performance.

5. COLLAPSE AND SUDDEN DEATH

The differential diagnosis and investigation of collapse and sudden death.

6. TOXICOLOGY

The clinical features, diagnosis and treatment of important poisonings.

7. INFECTIOUS DISEASES

The epidemiology, clinical features, diagnosis, treatment and prevention of infectious diseases (including exotic diseases of importance to the UK, such as Equine Viral Arteritis, African Horse Sickness, Rabies, etc).

8. NUTRITION OF THE SICK NEONATE AND ADULT HORSE

9. DISEASES OF FOALS

- a. The processes of passive and acquired immunity in the foal. Identification of the high risk foal.
- b. Nursing care and nutrition of the sick foal.
- c. Prematurity and dysmaturity.
- d. Bacterial infections in the neonate. Clinical manifestations, diagnosis and treatment.
- e. Neonatal maladjustment syndrome (per-parturient asphyxia). Diagnosis and treatment.
- f. Neonatal diseases, with emphasis on diseases of the respiratory system, alimentary tract, nervous system, urinary tract and musculoskeletal system. Iso-immune haemolytic anaemia.

10. PREVENTIVE MEDICINE

- a. Parasite control. Anthelmintic drugs. Design and evaluation of parasite control programmes. Anthelmintic resistance and its assessment.
- b. Vaccines and vaccination schedules. Advantages and disadvantages of vaccination.
- c. Disinfection and control of environmental contamination.
- d. Management of horse farms and studs in relation to control of contagious diseases.

11. THERAPEUTICS

- a. Antimicrobial therapy. Antibiotics and other antimicrobial drugs. Principles of antimicrobial therapy and selection of drugs in adult horses and foals. Determination of microbial sensitivity. Hospital-acquired (nosocomial) infections and their control.
- b. Anti-inflammatory drugs and corticosteroids.
- c. Analgesics.
- d. Fluid and electrolyte therapy. Acid-base balance.
- e. The pharmacology of commonly used drugs acting on different body systems.
- f. Disinfectants and control of environmental contamination.

12. WELFARE

- a. The normal behaviour of horses and assessment of abnormal behavioural patterns. The assessment of pain, suffering and stress.
- b. The basic needs of the horse.
- c. Welfare aspects of stabling, transportation, competition and general care of horses.
- d. Legislation affecting the welfare of horses.

13. TECHNIQUES AND PROCEDURES

Candidates should be generally competent and experienced in the performance of the relevant techniques and procedures, and should obtain certification to this effect (for submission to the Equine Board) from their advisor or from a senior veterinary member of staff at the practice/centre in respect of each of the following:

- a. Cardiac, lung and abdominal auscultation. The use of a re-breathing bag.
- b. Rectal palpation of abdominal viscera.
- c. Jugular venipuncture and catheter placement. Collection of blood for culture.
- d. Routine endoscopic examination of the upper and lower respiratory tracts, oesophagus, urethra and bladder.
- e. Abdominal paracenteses, thoracocentesis and arthrocentesis. Cytology of fluids.
- f. Rectal, liver, lung, skin and lymph node biopsy.
- g. Collection and analysis of skin scraping.
- h. ECG.
- i. Oral and iv glucose tolerance tests.
- j. Excretion tests for liver function.
- k. Thoracic percussion.
- l. Collection of tracheal aspirates by transtracheal route and via endoscope; broncho alveolar lavage. Respiratory cytology.
- m. Nasopharyngeal swabbing.
- n. Catheterisation of the urinary bladder in male and female horses.

- o. Routine neurological examination.
- p. Routine ophthalmoscopy.
- q. Conjunctival swabbing and cytology.
- r. Fluorescein staining.
- s. Nasolacrimal duct cannulation.
- t. Auriculopalpebral and infraorbital nerve blocks.
- u. Interpretation of haematological and clinical chemistry results. Interpretation of endocrine function tests including test for cryptorchidism.
- v. Vaginal examination and the collection of samples from the female reproductive tract for bacteriology, cytology and histopathology.
- w. Faecal examination for parasites and parasite eggs.
- x. Practical post-mortem examination and collection of tissue samples.
- y. Arterial blood collection and interpretation of blood gas analyses.
- z1. CSF collection.
- z2. Diagnostic ultrasonography of the heart, thorax and abdomen.

ADDITIONALLY, the candidate should:

- 14. Have an appreciation of the literature as it relates to internal medicine.
- 15. Possess extensive diagnostic and therapeutic expertise in a specified area of internal medicine.

Originated March 1994

Revised July 1999

Ref.DEIM Syl 99

**ROYAL COLLEGE OF VETERINARY SURGEONS
EQUINE BOARD**

CERTIFICATE IN EQUINE MEDICINE (INTERNAL MEDICINE)

COMMENTARY

The syllabus for the Certificate in Equine Medicine covers those aspects of veterinary science that relate to normal function, medical diseases and disorders of the Respiratory, Cardiovascular, Gastrointestinal, Urinary, Nervous and Reproductive systems, together with a general knowledge of horse breeding as practised in the UK.

In their elective subject, (Internal Medicine or Stud Medicine) candidates are expected to have more in-depth practical and theoretical knowledge based on substantial practical experience working in the subject area. This is most likely to be gained if the candidate has had a major commitment, in terms of time, in a dedicated equine practice or centre. The level of knowledge and expertise is not expected to be that of someone deemed to be an expert or specialist in the discipline.

SYLLABUS

1. GENERAL

- a. General knowledge of the equine industry in the UK, breeds of horses, general management of the stabled horse and the horse at grass.
- b. Manifestations of clinical disease; clinical problems, their pathophysiology and diagnostic approach.
- c. Clinical care; principles and techniques applicable to practice.
- d. Clinical pathology; techniques for sampling and sample handling. Interpretation of haematological, biochemical and endocrine tests. Principles of application of diagnostic microbiology and cytology. Ancillary diagnostic tests.
- e. Diagnostic imaging; principles and applications of the common imaging techniques (radiology, ultrasonography, endoscopy). Selection and limitations of procedures used for diagnosis.
- f. Stable vices.
- g. Physical and chemical restraint.

- h. Welfare; the normal behaviour of horses and assessment of abnormal behaviour patterns. The assessment of pain, suffering and stress. The basic needs of the horse. Welfare aspects of stabling, transportation, competition and general care of horses. Legislation affecting the welfare of horses.

2. DISEASES OF BODY SYSTEMS

- a. **The Alimentary System**
Normal structure and function of the alimentary tract. The diagnosis and treatment of diseases of the oral cavity, oesophagus, stomach, small intestine and peritoneal cavity. The pathogenesis and treatment of endotoxaemia. Fluid and electrolyte therapy for gastrointestinal disorders. The differential diagnosis and assessment of conditions causing colic, diarrhoea, malabsorption and dysphagia. The internal parasites and their effects on health.
- b. **The Hepatobiliary System**
Normal structure and function of the liver and biliary system. The pathophysiology of liver disease, liver failure and hepatic encephalopathy. The diagnosis and treatment of hepatobiliary diseases. The differential diagnosis and assessment of jaundice.
- c. **The Respiratory System**
Normal structure and function of the respiratory tract and pleural cavity. The diagnosis and treatment of diseases of the nasal cavity, paranasal sinuses, nasopharynx, guttural pouches, larynx, trachea, bronchial tree, lungs and pleural cavity. The diagnosis and treatment of viral, bacterial and parasitic infections of the respiratory tract. The differential diagnosis and assessment of conditions causing coughing, nasal discharge, dyspnoea and adventitious respiratory noises. The control of infectious respiratory diseases, and use of vaccines and consideration of Jockey Club regulations. The aerobiology of stables, and effects of environmental pollutants of respiratory health.
- d. **The Cardiovascular System**
Normal structure and function of the heart and vascular system. The pathophysiology of cardiac disease and cardiac failure. The diagnosis and treatment of congenital cardiovascular disease, valvular disease, myocardial disease, arrhythmias, pericardial disease, and vascular disease. The differential diagnosis and assessment of cardiac murmurs and arrhythmias.
- e. **The Urinary System**
Normal structure and function of the kidneys and urinary tract. The pathogenesis and treatment of acute and chronic renal failure, The diagnosis and treatment of diseases of the kidneys, ureters, bladder and urethra. The differential diagnosis and assessment of dysuria, urinary incontinence, discoloured urine and polydipsia/polyuria.
- f. **The Haematopoietic and Haemolymphatic Systems**
Normal structure and function of the spleen, thymus, bone marrow and lymphatic system. Normal and abnormal haematopoiesis. Normal and abnormal immune

responses including hypersensitivity reactions and autoimmunity. Normal and abnormal haemostasis. The diagnosis and treatment of anaemia, thrombocytopenia, purpura, vasculitis and lymphangitis. The clinical manifestations and diagnosis of lymphosarcoma and leukaemia. Immunodeficiency states, their diagnosis and treatment.

g. The Nervous System

Normal structure and function of the central nervous system, peripheral nervous system and autonomic nervous system. The diagnosis and treatment of diseases of the cerebrum, brainstem and cranial nerves, cerebellum, spinal cord, cauda equina and peripheral nerves. The differential diagnosis and treatment of diseases causing behavioural disturbances and ataxia. The diagnosis and treatment of meningitis, encephalitis, rabies, botulism, tetanus, wobbler disease and other neuropathies.

h. The Eye

Normal structure and function of the eye and periocular structures. The diagnosis and treatment of common diseases of the eye and periocular tissues. The differential diagnosis and assessment of ocular discharge, ocular pain and blindness.

i. The Musculoskeletal System

Normal structure and function of the musculoskeletal system. The pathophysiology and diagnosis of diseases of bones, joints, connective tissue and muscle. The treatment of diseases of the musculoskeletal system with particular emphases on infective processes, laminitis, myopathies and metabolic diseases.

j. The Endocrine System

Normal structure and function of the endocrine tissues. Control and function of the major hormones. The diagnosis and treatment of diseases of the pituitary gland, adrenal glands, thyroid glands, parathyroids and pancreas.

k. The Skin

Normal structure and function of the skin. The diagnosis and treatment of skin diseases associated with hypersensitivity, autoimmunity, bacterial, viral, fungal and parasitic infections, neoplasia and other common conditions. The differential diagnosis and assessment of pruritus, hair loss and skin nodules.

l. The Male and Female Reproductive Systems

Normal structure and function of the male and female genital organs. General knowledge of the common diseases affecting the genital organs. Methods of pregnancy diagnosis.

3. DISEASES OF FOALS

General knowledge of the common diseases of the foal, their diagnosis and treatment.

4. PREVENTIVE MEDICINE

- a. Parasite control. Anthelmintic drugs. Design and evaluation of parasite control programmes. Anthelmintic resistance and its assessment.

- b. Vaccines and vaccination schedules.
- c. Disinfection and control of environmental contamination.
- d. Management of horse farms and studs in relation to control of contagious diseases.

5. THERAPEUTICS

- a. Antimicrobial therapy. Antibiotics and other antimicrobial drugs. Principles of antimicrobial therapy and selection of drugs in adult horses and foals. Determination of microbial sensitivity.
- b. Anti-inflammatory drugs and corticosteroids.
- c. Analgesics.
- d. Fluid and electrolyte therapy.

6. WELFARE

- a. The normal behaviour of horses and assessment of abnormal behavioural patterns. The assessment of pain, suffering and stress.
- b. The basic needs of the horse.
- c. Welfare aspects of stabling, transportation, competition and general care of horses.
- d. Legislation affecting the welfare of horses.

7. TECHNIQUES AND PROCEDURES

Candidates should be generally competent and experienced in the performance of the relevant techniques and procedures, and should obtain certification to this effect (for submission to the Equine Board) from their advisor or from a senior veterinary member of staff at the practice/centre in respect of each of the following:

- a. Cardiac, lung and abdominal auscultation. The use of a re-breathing bag.
- b. Rectal palpation of abdominal viscera.
- c. Jugular venipuncture and catheter placement. Collection of blood for culture.
- d. Routine endoscopic examination of the upper and lower respiratory tracts, oesophagus, urethra and bladder.
- e. Abdominal paracenteses, thoracocentesis and arthrocentesis.
- f. Rectal, liver, skin and lymph node biopsy.
- g. Collection and analysis of skin scraping.
- h. ECG.
- i. Basic abdominal and thoracic ultrasonography.

- j. Thoracic percussion.
- k. Collection of tracheal aspirates by transtracheal route and via endoscope; broncho, alveola, lavage.
- l. Nasopharyngeal swabbing.
- m. Catheterisation of the urinary bladder in male and female horses.
- n. Neurological examination.
- o. Ophthalmoscopy.
- p. Conjunctival swabbing and cytology.
- q. Fluorescein staining.
- r. Nasolacrimal duct cannulation.
- s. Auriculopalpebral and infraorbital nerve blocks.
- t. Interpretation of haematological and clinical chemistry results.
- u. Vaginal examination and the collection of samples from the female reproductive tract for bacteriology, cytology and histopathology.
- v. Faecal examination for parasites and parasite eggs.
- w. Practical post-mortem examination and collection of tissue samples.

Originated March 1994

Commentary revised November 2002

Techniques and Procedures revised Nov. 2005

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EQUINE DIPLOMAS – READING LISTS

There are no separate reading lists for the Diplomas as candidates at this level are expected to be familiar with all literature in the area of their elective and most particularly so in the topic of their dissertation or submitted papers. Candidates are recommended to make use of the RCVS Library and Information Service for this purpose (<http://www.rcvslibrary.org.uk> , e-mail - library@rcvs.org.uk or telephone 020 7222 2021). Candidates should also seek advice on suitable reading matter from their Advisers.

April 2003

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Candidates should note that the reading lists for the Equine Certificates were frozen in 2002 and will eventually be withdrawn. Candidates are expected to research the literature for themselves and are recommended to make use of the RCVS Library and Information Service for this purpose (<http://www.rcvslibrary.org.uk> , e-mail - library@rcvs.org.uk or telephone 020 7222 2021). Candidates should also seek advice on suitable reading matter from their Advisers.

CERTIFICATE IN EQUINE MEDICINE (INTERNAL MEDICINE)

READING LIST

(See also lists for Certificate in Equine Practice)

Certificate

BISHOP, Y (1998) The Veterinary Formulary. 4th Edition. Pharmaceutical Press.

BROWN, C M (1989) Problems in Equine Medicine Lea & Febiger.

COLAHAN, P T, MAYHEW, I G, MERRITT, A M & MOORE, J N (1999) Equine Medicine and Surgery 5th Edition. Goleta, American Veterinary Publications.

HIGGINS, A J, and WRIGHT I M, (1995) The Equine Manual. W B Saunders Co.

HODGSON, D R, & ROSE, R J (1994) The Athletic Horse. Principles and Practice of Equine Sports Medicine W B Saunders Co.

JOHNSTON, A M (1986) Equine Medical Disorders 2nd Edition. Blackwell Scientific Publications.

KNOTTENBELT (1997) Formulary of Equine Medicine 3rd Edition. Liverpool University Press.

KNOTTENBELT (1994) Colour Atlas of Diseases and Disorders of the Horse Mosby-Wolfe.

KOBLUK, C N, AMES, T R & GEOR, R J (1995) The Horse: Diseases and Clinical Management. W. B. Saunders Co.

MAIR, T., LOVE, S., SCHUMACHER, J. and WATSON, E. D. (1998) Equine Medicine, Surgery and Reproduction. W. B. Saunders Co.

MAIR, T. S. and DIVERS, T J. (1997). Self-Assessment Colour Review of Equine Internal Medicine. Manson Publishing.

ORSINI, J A. and DIVERS, T J (1998). Manual of Equine Emergencies. W. B. Saunders Co.

PASCOE, R. R. R. & KNOTTENBELT, D. C. (1999). Manual of Equine Dermatology. W. B. Saunders Co.

PATTESON, M (1996) Equine Cardiology Blackwell Scientific Publications.

PINSENT, P J N & FULLER, C J (1997) Outline Clinical Diagnosis in the Horse. 2nd Edition. Wright.

REED, S M and BAYLY, W. M. (1998) Equine internal Medicine. W. B. Saunders Co.

REEF, V. B. (1998). Equine Diagnostic Ultrasound. W. B. Saunders Co.

ROBINSON, N E (ed), (1992) Current Therapy in Equine Medicine 3rd Edition, Philadelphia. W. B. Saunders Co.

ROBINSON, N E (1997) Current Therapy in Equine Medicine. 4th Edition, Philadelphia. W. B. Saunders Co.

ROSE, R J & HODGSON, D R (1993) Manual of Equine Practice W. B. Saunders Co.

SPEIRS, V. C. and WRIGLEY, R. H. (1997). Clinical Examination of Horses. W. B. Saunders Co.

TAYLOR, F G R T and HILLYER, M H (1997). Diagnostic Techniques in Equine Medicine. W B Saunders Co.

TRAUB-DARGATZ, J L and BROWN C M (1997). Equine Endoscopy. Mosby.

WATSON, T. D. G. (1998) Metabolic and Endocrine Problems of the Horse. W. B. Saunders Co.

Journals and other sources of reference

Candidates are encouraged to read about their subject in current Journals.

(See Certificate in Equine Practice List)

Originated 1994
Revised Sept. 1995
Revised July 1996
Revised July 1998
Revised July 1999
Ref. Medicine\CeimRead99

DIPLOMA IN EQUINE INTERNAL MEDICINE

Details of the veterinary practice in which experience is being gained to meet the requirements of the byelaws (see schedules) including at least three years of substantial experience in the subject concerned.

(If more than one establishment, please photocopy this form and complete in respect of each such establishment)

1. Name of practice and address

2. Date of commencement
of employment _____

(and date of leaving if you are no longer employed at this
address: _____)

3. Numbers of veterinary surgeons usually working in your place of employment

4. Approx. total practice case load per month

which includes _____ equine cases per month.

5. Proportion of the practice case load which you personally undertake:

_____% of total cases per month (= approx. ____ cases per month)

_____% of total equine cases per month (= approx. ____ equine cases per month)

6. Equipment and facilities available for the examination and medical and surgical treatment of equine cases.

7. Please describe overleaf the range of equine cases with which you deal, and give the percentage of your time which you spend on equine work.

(if more than one practice is concerned, a separate copy of this form should be completed in respect of each such practice.)

Signature

Date

Please enclose SAE for acknowledgement

8. Please describe the range of equine cases with which you deal, and give the percentage of your time which you spend on equine work.

(if more than one centre is concerned, a separate copy of this form should be completed in respect of each such practice.)

Signature

Date

Please enclose SAE for acknowledgement

If there has been any change in the work-load of the establishment, or in your personal work-load, since you applied for enrolment, please give details below:

7. ATTENDANCE AT RELEVANT SHORT COURSES

Title of course attended: _____

Dates and venue: _____

Please send a photocopy of your RCVS CPD Record Card for all CPD events for the period of experience being offered.

8. OTHER INVOLVEMENT IN RELATION TO EQUINE INTERNAL MEDICINE

List any attendances at relevant congresses, conferences, meetings, symposia, etc., with dates:

9. PUBLICATIONS/ARTICLES/PAPERS/LECTURES

Give details below (including any involvement in the instruction of others):

10. OTHER POSTGRADUATE STUDIES

During the period of experience being offered, have you been or are you studying for any other postgraduate qualification? YES/NO

If yes, please give brief details:

11. **SUBMITTED WORK**

The subjects of the **two** first author papers and **three** principal author papers case report which I intend to submit for the examination are as follows:-

12. **I HEREBY APPLY FOR FINAL APPROVAL OF EXPERIENCE AND FOR PERMISSION TO SUBMIT AN ENTRY TO THE NEXT DIPLOMA EXAMINATION IN EQUINE INTERNAL MEDICINE**

I certify that the period of experience being offered has not been/is not being offered to meet the requirements of the byelaws for any other RCVS Certificate or Diploma.

*Delete section 13 if you do not intend to sit the next examination.
Please note that only those candidates who now confirm their intention to sit will have their examination entry accepted at the closing date.*

13. **CONFIRMATION OF INTENT TO SIT THE EXAMINATION**

I confirm my intention, if approval of experience is granted, of submitting an entry to the next examination.

Signature _____ Date _____
Please enclose SAE for acknowledgement

The following section should be completed by your Adviser.

I confirm that I am acting as this candidate's Adviser.

Name _____

Signature _____ Date _____

ROYAL COLLEGE OF VETERINARY SURGEONS

EQUINE BOARD

DIPLOMA IN EQUINE INTERNAL MEDICINE

TECHNIQUES AND PROCEDURES

I CERTIFY THAT THE FOLLOWING CANDIDATE IS GENERALLY COMPETENT AND EXPERIENCED IN THE PERFORMANCE OF THE TECHNIQUE/PROCEDURE COUNTERSIGNED BELOW:

Candidates should be generally competent and experienced in the performance of the relevant techniques and procedures, and should obtain certification to this effect (for submission to the Equine Board) from their advisor or from a senior veterinary member of staff at the practice/centre in respect of each of the following:

Signature and Date

- a. Cardiac, lung and abdominal auscultation.
The use of a re-breathing bag.
- b. Rectal palpation of abdominal viscera.
- c. Jugular venipuncture and catheter placement.
Collection of blood for culture.
.....
- d. Routine endoscopic examination of the upper
and lower respiratory tracts, oesophagus,
urethra and bladder.
- e. Abdominal paracenteses, thoracocentesis
and arthrocentesis. Cytology of fluids.
- f. Rectal, liver, lung, skin and lymph
node biopsy.
- g. Collection and analysis of skin scraping.
- h. ECG.
- i. Oral and iv glucose tolerance tests.
- j. Excretion tests for liver function.
- k. Thoracic percussion.

p.t.o.

- l. Collection of tracheal aspirates by transtracheal route and via endoscope; broncho alveola lavage.
- m. Nasopharyngeal swabbing.
- n. Catheterisation of the urinary bladder in male and female horses.
- o. Routine neurological examination.
- p. Routine ophthalmoscopy.
- q. Conjunctival swabbing and cytology.
- r. Fluorescein staining.
- s. Nasolacrimal duct cannulation.
- t. Auriculopalpebral and infraorbital nerve blocks.
- u. Interpretation of haematological and clinical chemistry results. Interpretation of endocrine function tests including test for cryptorchidism.
- v. Vaginal examination and the collection of samples from the female reproductive tract for bacteriology, cytology and histopathology.
- w. Faecal examination for parasites and parasite eggs.
- x. Practical post-mortem examination and collection of tissue samples.
- y. Arterial blood collection and interpretation of blood gas analyses.
- z. CSF collection.

Candidate:.....
 Full name (surname in block letters)

DIPLOMA IN EQUINE INTERNAL MEDICINE

Candidates should refer to the lists of Specialists and Diploma holders published in Section 3 of the RCVS Register of Members.

April 2003

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN EQUINE INTERNAL MEDICINE

MONDAY 10 JULY 2006

**PAPER I
BASIC SCIENCES**
(3 hours)

SECTION A

Candidates are required to answer **ONE** of the following **two** questions.

Allow 1½ hours

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. What are the major hypotheses concerning the pathogenesis of laminitis? Provide a critical review, based on experimental and clinical evidence, of the strengths and weaknesses of each of the hypotheses.
 2. Write a critical account of the current understanding of the aetiopathogenesis of equine myopathies.

P.T.O FOR SECTION B

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN EQUINE INTERNAL MEDICINE

MONDAY 10 JULY 2006

PAPER I

BASIC SCIENCES

SECTION B

Candidates are required to answer **ALL TEN** of the following questions.

Allow 9 minutes per question.

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

3. **Detail** the clinical and pathological parameters that are used to assess the critically-ill adult horse.
 4. **List** drugs that influence vasomotor tone in septic neonatal foals and **describe** their mode(s) of action.
 5. **Describe**, giving specific examples, the applications of molecular diagnostic methods in equine medicine.
 6. **Summarise**, giving specific examples, the use of cytotoxic drugs in equine medicine.
 7. **Briefly** describe magnesium homeostasis.
 8. **List** the key elements of biosecurity programmes for equine establishments? Using specific examples, **describe** how these elements can be applied to **THREE** different situations; namely, training yards; livery yards; and studs.
 9. **Discuss** the aetiopathogenesis and epidemiology of inflammatory airway disease.
 10. **Review** the evidence that methicillin-resistant *Staphylococcus aureus* (MRSA) is an emerging equine problem.
 11. **Outline** the pathogenesis and management of non-ulcerative keratopathy.
 12. **Describe** the investigation of polyuria in the horse.
-

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA IN EQUINE INTERNAL MEDICINE

MONDAY 10 JULY 2006

PAPER II
CLINICAL ASPECTS
(3 hours)

Candidates are required to answer **FIVE** of the following **six** questions.

Allow 35 minutes per question.

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. **Describe** the pathogenesis, diagnosis and management of the immune-mediated skin diseases of the horse.
2. **Write a review** of Lyme disease in the United Kingdom.
3. **Describe in detail** the current concepts of the diagnosis, management and control of equine herpesvirus myeloencephalopathy.
4. **Discuss** the use of Electromyography (EMG) in equine medicine.
5. **Discuss specific** treatments aimed at limiting the clinical signs or pathophysiology associated with perinatal asphyxia syndrome (hypoxic ischaemic encephalopathy or neonatal maladjustment syndrome), and any evidence for the effectiveness of each treatment. (**do NOT** discuss general supportive measures common to all critically-ill foals).
6. **Categorise and list** different types of fluids available for fluid therapy in horses. **Discuss** the potential roles for these fluids, including advantages and disadvantages, for resuscitation of a horse with anterior enteritis and a horse with severe colitis.
