

**The Royal College of Veterinary Surgeons**

**PART II (DIPLOMA) EXAMINATION IN EQUINE STUD MEDICINE**

**Monday**

**12 May 1986**

**PAPER I (3 hours)**

**(Basic sciences)**

**SECTION A**

Two long-answer questions  
of which a candidate must choose one question  
to answer in approximately one and a half hours

1. Describe the composition of normal fertile stallion semen in terms of both spermatozoa and biochemical components. Discuss the significance of each of these parameters as a cause of sub-fertility in the stallion.
2. Describe the sequence of morphological and biochemical changes that occur in the reproductive tract of the mare to ensure sufficient endogenous secretion of progesterone to maintain the pregnancy state from conception to foaling. Comment briefly on the rationale, and efficacy, of giving exogenous progestagen therapy to prevent pregnancy loss.

P.T.O. for Section B

## SECTION B

Ten compulsory short-answer questions  
to be answered in approximately one and a half hours  
(this allows some nine minutes for each question)

3. List the haematological, venous blood biochemical and arterial blood parameters that would be useful in the differential diagnosis of disease affecting foals in the newborn period and state the normal limits in each case using SI units.
4. State the antigenic factors associated with haemolytic diseases of the newborn foal. Provide a schematic representation of the Coombs Test.
5. Briefly outline the putative role of the hypothalamic-pituitary-adrenal axis of the foal in the final stages of gestation and during the first three days postpartum.
6. Outline a clinical test of adrenocortical function in the foal and describe a therapeutic protocol on a case of hypoadrenal cortical function.
7. Describe briefly the equine endometrial cup reaction. Give your views as to its possible significance in the maintenance of equine pregnancy.
8. "Thin ovulation rate is considerably higher than twin conception rate in Thoroughbred mares." Expand upon this statement, giving actual figures and their sources where possible.
9. Describe the role of calcium and phosphorus in the diet of mares in the latter third of pregnancy.
10. Write notes on chromosomal abnormality as a cause of infertility in the mare and its diagnosis.
11. Describe measures of supportive therapy in the very young foal in relation to respiratory, metabolic and thermoregulatory problems with reference to underlying physiological principles.
12. Describe briefly the endocrinological features and behaviour of a mare with a granulosa cell tumour.

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**PART II (DIPLOMA) EXAMINATION IN EQUINE STUD MEDICINE**

**Monday**

**12 May 1986**

**PAPER II (3 hours)**

**(Clinical aspects)**

This paper consists of six questions  
of which a candidate must choose five to answer  
(this allows some 35 minutes for each question)

1. Discuss the characteristics of *Rhodococcus equi* as a bacterial disease in young horses; and discuss the syndrome in all its aspects including pathogenesis, immunology, diagnosis and therapy.
2. Describe briefly two methods for measuring the concentration of progesterone in mare's plasma and discuss fully the potential application and value of plasma progesterone assays in Thoroughbred stud management.
3. Recent studies have indicated that infusing autologous plasma or colostrum into the uterus of some mares increases their chances of carrying a foal to full term. Describe the types of mares to which this form of therapy may be applied, the underlying reasons for their conditions and the clinical and/or laboratory tests you may use in selecting them for treatment. Describe doses and treatment regimes employed and discuss the physiological and cellular mechanisms thought to be involved.
4. In mid-May your clients fertile Hunter stallion stands in Ireland and he wishes to use this horse to impregnate his three fertile mares standing in Britain without shipping the animals in either direction. Outline how you might expeditiously and most cheaply achieve this objective.
5. HcG or GnRH may be used to cause ovulation during oestrus. Provide a brief summary of the salient findings reported in the literature regarding the efficacy of the use of these hormones. Outline a research protocol which might be used to establish the timing at which ovulation occurs following the use of each.
6. Discuss the way in which recent work on the bacterial flora of the stallion's external genital organs has influenced the control of venereal infections.

**THE ROYAL COLLEGE OF VETERINARY SURGEONS**

**PART II (DIPLOMA) IN  
EQUINE STUD MEDICINE  
EXAMINATION**

**PAPER I**

**(Basic Sciences)**

Friday 1 May 1987

10 a.m. to 1 p.m. (3 hours)

**SECTION A**

Two long-answer questions of which a candidate must choose one question to answer in approximately 1½ hours

1. Describe the fundamental physiological basis of the pineal gonadal axis in relation to the inherent polyoestrus condition of mares.
2. Describe the principles behind the treatment and management of Central Nervous System haemorrhage. Describe the therapy of a convulsive foal.

## SECTION B

Ten compulsory short-answer questions to be answered in approximately 1½ hours (allowing some 9 minutes for each question)

3. Write notes about the diagnosis of acute endometritis prior to coitus in the mare; and outline appropriate measures to be taken prior to coitus in a mare belonging to a commercial breeding programme.
4. Describe the use of, and principles behind, oestrone sulphate assay for the monitoring of pregnancy in mares.
5. Outline the gross and laboratory aspects of foetalpost-mortem examination with particular reference to the diagnosis of Equid Herpesvirus 1.
6. Draw and label a diagram of the equine conceptus at Day 25 to illustrate the main developmental features.
7. Write notes on the composition of mammary secretion in the mare during the pre-parturient and parturient period.
8. Draw a diagram to show the relationships of the accessory sexual glands of the stallion and state the nature of their secretions.
9. Give a brief description of the source and biological functions of inhibin in the cycling mare.
10. Outline the signs, diagnosis, possible causes and available methods for treatment of lactation-related anoestrus in mares.
11. Describe the theory and major chemical reactions of the enzyme-linked immunoassay (ELISA) technique.
12. List the main parameters used to assess stallion semen and give approximate values for a typical Thoroughbred stallion.

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PART II (DIPLOMA) IN  
EQUINE STUD MEDICINE  
EXAMINATION

PAPER II  
(Clinical aspects)

Friday 1 May 1987  
2 p.m. to 5 p.m. (3 hours)

This paper consists of six questions of which a candidate must choose five to answer (which allows some 35 minutes for each question)

1. Describe the physical and biological features involved in thermoregulation in the newborn foal and their practical consequences in relation to management of healthy foals and compromised cases.
2. Describe, with the aid of diagrams if desired, the reasons for the restraint, anaesthetic and surgical techniques involved in the Pouret technique for perineal restructuring in the mare.
3. Describe the optimum technique you would employ to collect and deep freeze a sample of stallion semen for export in liquid nitrogen. Give details of preferred diluents, freezing method and in vitro assessment of the frozen-thawed sperm.
4. Give an account of the various forms of intestinal colic seen in foals from birth to weaning with special reference to their causes.
5. Nowadays Caesarean section is often preferred to embryotomy in severe dystokia cases. Give your views on this and discuss the advantages and disadvantages of each method.
6. A new client has a small studfarm with 15 mares and their followers. The breeding season has just ended and 5 of the 15 mares have returned from stud thought not to be in foal. Describe and discuss your advice to this client in relation to achieving more satisfactory fertility levels in his mares next season.

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**PART II (DIPLOMA) IN  
EQUINE STUD MEDICINE  
EXAMINATION**

**PAPER I**

**(Basic Sciences)**

**Wednesday 4 May 1988  
10 a.m. to 1 p.m. (3 hours)**

**SECTION A**

Two long-answer questions of which a candidate must choose one question to answer in approximately 1 ~ hours

1. Describe the kinetics of the equine endometrial cup reaction and discuss the endocrinological, immunological, and genetic function of this aspect of placentation, in relation to the diagnosis and maintenance of pregnancy.
2. Provide a definition of equine prematurity and dysmaturity; and discuss the concept of readiness for birth in terms of foetal and maternal physiology. Indicate what clinical inferences concerning diagnosis, therapy and management may be drawn from current knowledge regarding maternal preparation for birth and foetal maturation.

PTO for Section B

## SECTION B

Ten compulsory short-answer questions  
to be answered in approximately 1½ hours  
(allowing some 9 minutes for each question)

3. List the environmental and seasonal factors affecting the motility and survival longevity of stallion spermatozoa in vitro. Recommend an extender to improve long term survival for use a) with raw semen b) as a vehicle for freezing semen.
4. Oxytocin stimulates prostaglandin production in the mare: discuss this statement in relation to the endocrine events of the oestrus cycle, anoestrus and pregnancy.
5. Discuss prolactin as a lactogenic hormone in the mare and the response to TRH stimulation. Does the source of the antibody in the assay used to measure equine plasma prolactin affect the results?
6. Discuss briefly the effects of susceptibility of mares to endometritis and stage of cycle on phagocytic activity of uterine neutrophils.
7. List the haematological, venous blood biochemical and arterial blood parameters that would be useful in the differential diagnosis of disease affecting foals in the newborn period and state the normal limits in each case using SI units.
8. Illustrate the microstructure of the equine placenta and its special features with regard to blood flow and diffusion pathways.
9. Define the terms right to left and left to right shunts as they apply to normal and abnormal development and cardiopulmonary function in the newborn foal. Enumerate the possible causes of pulmonary hypertension.
10. List the parameters considered to be important in soil analysis of studfarm grazing land and indicate desirable levels and list the clinical problems that may be associated with deficient or excess values.
11. List the hormones produced by the conceptus during gestation in the mare indicating briefly their possible relationship to implantation and foetal development.
12. Postulate the sequence of endocrine pathways leading to the transition of a mares sexual state from anoestrus to the first ovulation of the season. Mention, in particular, the parts played by daylight, FSH, GnRH, LH, melatonin, oestrogen and progesterone.

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**PART II (DIPLOMA) IN  
EQUINE STUD MEDICINE  
EXAMINATION**

**PAPER II**

**(Clinical aspects)**

Wednesday 4 May 1988

2 p.m. to 5 p.m. (3 hours)

This paper consists of six questions  
of which a candidate must choose five  
to answer (which allows some 35 minutes for each question)

1. Ultrasonography is used for early pregnancy diagnosis in mares. Discuss the advantages and disadvantages relating to the time from ovulation at which the examination is made, the normal and abnormal appearances of the conceptus and other structures which might be encountered on these examinations.
2. Discuss from a veterinary viewpoint the advantages and disadvantages of managing Thoroughbred weanlings outside throughout the winter.
3. Discuss the natural defence mechanisms of the mare's endometrium and how they may be compromised. Indicate possible methods of support and how embryo transfer in performance mares is now being practised. Describe how you would synchronise a recipient, collect from a donor and transfer the egg. Comment on variations in methods that have appeared in the literature during recent years.
4. Describe, with the aid of diagrams if desired, the reasons for the restraint, anaesthetic and surgical techniques involved in the Pouret operation for perineal restructuring in the mare.
5. Give an account of the various forms of intestinal colic seen in foals from birth to weaning with special reference to their causes.
6. List the clinical and clinicopathological features of pituitary tumours in mares.

The Royal College of Veterinary Surgeons

**DIPLOMA IN EQUINE STUD MEDICINE EXAMINATION**

**PAPER I  
(Basic Sciences)**

**Tuesday 3 May 1994**

**10.00 a.m. to 1.00 p.m. (3 hours)**

**SECTION A**

**Two long-answer questions of which a candidate must choose one question to answer in approximately 1 1/2 hours**

*Candidates are warned that illegible handwriting may result in examiners being unable to award marks for information which candidates intended to convey*

- 1.** Discuss the role of gestation (conception to parturition) failure in mares as **a cause** of wastage to the Thoroughbred breeding industry. Describe and contrast, in detail, its various causes, their pathophysiology, diagnosis, treatment and prevention.
- 2.** Discuss the term 'developmental orthopaedic disease' as it applies to the growing foal and yearling, and its role as a cause of wastage to the performance horse industries. Compare and contrast the various clinical manifestations of this syndrome and discuss, in detail, their pathophysiology, diagnosis, treatment and prevention.

P.T.O. for Section B

The Royal College of Veterinary Surgeons

**DIPLOMA IN EQUINE STUD MEDICINE EXAMINATION**

**PAPER I**

**(Basic Sciences)**

**Tuesday 3 May 1994**

**10.00 p.m. to 1.00 p.m. (3 hours)**

**SECTION B**

**Ten compulsory short-answer questions to be answered in approximately 1 1/2 hours (allowing some 9 minutes for each question)**

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3. What are the important environmental and endocrinological factors controlling the mare's transition from winter anoestrus to cyclic oestrus?
4. Define the concept of foeto-maternal 'readiness for birth' and briefly discuss how this state can be assessed in practice.
5. List the stages of spermatogenesis in the horse and discuss how errors in this process can lead to defects in sperm morphology and other seminal abnormalities.
6. Describe the pathogenesis of equine neonatal isoerythrolysis and detail its laboratory diagnosis.
7. What is chronic endometrial degenerative disease ('endometrosis')? Briefly discuss its pathogenesis, laboratory diagnosis and its possible effect on mare fertility.
8. List the variations in the process of ovulation in mares, and discuss their significance in terms of routine ovarian examinations in practical breeding programmes.
9. Describe the process of post-partum uterine involution in mares. Briefly discuss the diagnosis, treatment and management of delays.

P.T.O. for questions 10, 11 and 12

10. Discuss the laboratory assessment of the calcium:phosphate balance in growing horses and its interpretation in relation to dietary intakes.
11. Discuss the welfare implications of maintaining teaser stallions on stud farms.
12. List, and briefly discuss, the main steps in the selection and preparation of donor and recipient mares for a successful equine embryo transfer programme.

The Royal College of Veterinary Surgeons

**DIPLOMA IN EQUINE STUD MEDICINE EXAMINATION**

**PAPER II**

(Clinical Aspects)

**Tuesday 3 May 1994**

**2.00 p.m. to 5.00 p.m. (3 hours)**

**This papers consists of six questions of which a candidate must choose five to answer (which allows some 35 minutes for each question)**

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1. Describe the clinical signs of Equine Viral Arteritis and discuss its diagnosis, treatment, management and prevention. What are the implications of the first confirmed outbreak to the U.K. horse industries?
2. Discuss the decision-making dilemmas faced by obstetricians in cases of equine dystocia, in terms of maximising the chances for mare/foal survival and available choices for treatment.
3. Discuss the limiting factors in ensuring that chilled or frozen semen artificial insemination programmes are successful in horses and the methods that overcome problems.
4. Discuss the clinical aspects of sporadic and epidemic diarrhoea in foals, their causes, diagnosis, treatment and management.
5. Describe the clinical and administrative problems associated with the isolation of *Klebsiella pneumoniae* or *Pseudomonas aeruginosa* from the external genitalia of stallions, before or during the breeding season. Discuss how these problems may be overcome by assessing the significance of isolates, deciding if treatment is required, and if so, by what methods.
6. Discuss the clinical manifestations, diagnosis, treatment and management of a grass sickness (equine dysautonomia) 'epidemic' in mares at stud. What steps would you recommend to the manager to prevent the occurrence of cases in the future?