



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2016

EQUINE STUDIES
MARKING GUIDELINES

Time: 3 hours

200 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

SECTION A**QUESTION 1**

- 1.1 Define the following terms:
- 1.1.1 Polyoestrous: multiple cycles in a season.
 - 1.1.2 Quidding: dropping balls of feed and hay due to dental problems.
 - 1.1.3 Colic: any form of abdominal pain.
 - 1.1.4 Haemoglobin: red pigment found in RBC's that carry oxygen.
 - 1.1.5 Abscess: walled off, puss-filled cavity. (5)
- 1.2 Give the name for the following descriptions:
- 1.2.1 Dioestrus
 - 1.2.2 Wolf teeth
 - 1.2.3 Hirsutism
 - 1.2.4 Myoglobin
 - 1.2.5 Occipital fossa (5)
- 1.3 Correct the following FALSE statements to make them true.
- 1.3.1 A grey horse must always have AT LEAST ONE grey parent.
 - 1.3.2 The gallop is a FOUR-beat gait.
 - 1.3.3 Diabetes type two is when the body does not respond to INSULIN.
 - 1.3.4 Cushing's syndrome is when there is a growth of the PITUITARY gland.
 - 1.3.5 The horse's temperature and pulse rate are 37.5–38.5 °C and 20–40 bpm respectively. (5)
- 1.4 Match Column A to the correct answer in Column B. Write just the number and correct letter down.
- 1.4.1 C
 - 1.4.2 B
 - 1.4.3 E
 - 1.4.4 F
 - 1.4.5 I (5)
- [20]

QUESTION 2

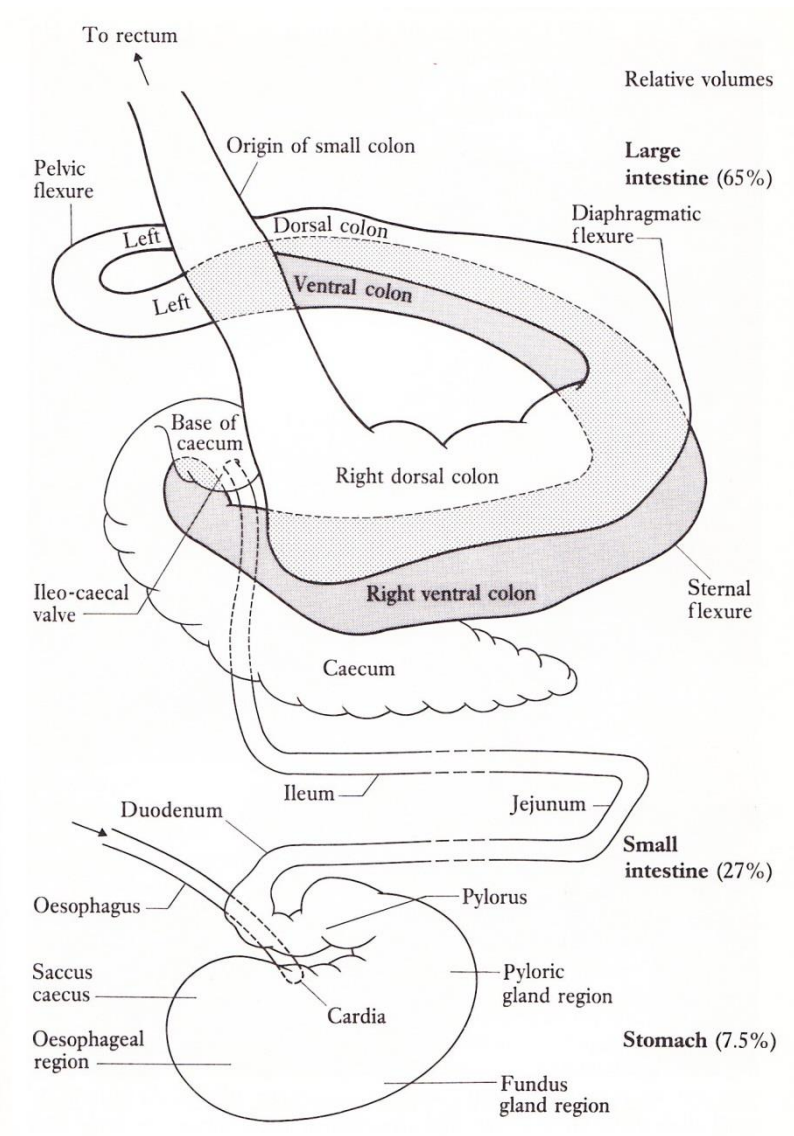
- 2.1 Give the number that corresponds to the following muscles:
- 2.1.1 15 Brachiocephalic
 - 2.1.2 13 Triceps
 - 2.1.3 4 Latissimus dorsi
 - 2.1.4 1 Splenius
 - 2.1.5 6 Biceps femoris (10)
- 2.2 Give the functions of any four of the above muscles
- Brachiocephalic** brings head down and side to side, brings front limb forward.
- Triceps** extends the elbow and flexes the shoulder.
- Latissimus dorsi** flexes shoulder joint. Retracts forelimb. When foot is on the ground, it helps to push the body over the limb.
- Splenius** holds head in the bit position.
- Biceps femoris** kicking, rearing, impulsion. (4)

2.3 Name the parts of the heart labelled A–I below.

- A – left atrium
- B – left atrioventricular (AV) valve/mitral valve
- C – semilunar aortic valve
- D – left ventricle
- E – septum
- F – right ventricle
- G – semilunar pulmonary valve
- H – right AV valve/tricuspid valve
- I – left atrium

(9)

2.4 Draw and label a schematic representation of the entire digestive tract of the horse.



[Adapted from: David Frape, *Equine nutrition & feeding, 4th Edition* (Fig. 1.2, p. 6)]

(17)
[40]

60 marks

SECTION B**QUESTION 3**

- 3.1 Zoonotic disease. (1)
- 3.2 Flying fox bat. (1)
- 3.3 If other species of bats could harbour the virus and transmit it, or if an infected horse is exported to other parts of the world, it could start an epidemic. (2)
- 3.4 Percentage chance of dying. (2)
- 3.5 Wear gloves and protective clothing; dispose of horses' excretions correctly and safely. (2)
- 3.6 Inject modified or dead virus and immune system reacts to it by building antibodies without becoming ill from the virus. OR Real infection has immunity. (3)
- 3.7 Stable horses at night; do not have fruit trees in paddocks that would attract bats; fence trees off so that horses do not graze by bat guano.
Store feed in sealed container.
Keep water troughs clean/replace water regularly. (5)
- [16]**

QUESTION 4

- 4.1 Warm weather, increased nutrition. (2)
- 4.2 Tricks mare into thinking it is already spring with increased daylight hours. (3)
- 4.3 11 p.m. or 23:00. (1)
- 4.4 26 (will accept 27 + 28). (1)
- 4.5 Pineal gland. (1)
- 4.6 Stable light. (1)
- 4.7 Many mares live out; not enough stables to stable all mares; cost of electricity; Eskom load-shedding makes stable light unreliable. (any 2) (2)
- 4.8 11 months/340 days. (1)
- 4.9 Want foals early, to be as old as possible when they race, late foals means young horse in age group and mare gets back into foal later – vicious circle. (3)
- 4.10 1 August. (1)
- 4.11 Hypothalamus, pituitary (hypophysis), pineal, thyroid, parathyroids, adrenals, the islets of Langerhans in the pancreas, the ovaries, and the testes. (any 3) (3)
- [19]**

QUESTION 5

- 5.1 Leave nail in place if possible until vet arrives. Keep horse quiet and stop bleeding. Once nail removed, soak in Epsom salts, poultice. Vaccinate tetanus. (5)
- 5.2 (Rasp clinches down) or use buffer and driving hammer to open clinches. Remove (nails with a nail puller) OR use shoe puller heel to toe to remove shoe. (5)

5.3 **Cold shoeing** – machine-made shoes with minimal altering (most farriers)

Advantages (any two)

More horses can be shod in a shorter period

Cheaper

Easier for nervous horses

Disadvantages (any two)

Limited in how farrier can alter the shoe to fit the horse.

Iron work/blacksmithing is a skill that may be lost.

Farrier at higher risk of early onset deafness.

Hot shoeing – use heat to build or shape shoes

Advantages (any two)

Improved fitting of shoe to the foot.

Allows farrier to seat toe and quarter clips and calkins.

Cauterises hoof wall – stop infection in white line.

Shoes stay on better for longer.

Not as noisy as less hammering of shoe required (less deaf farriers).

Disadvantages (any two)

Takes longer if done properly.

Increased expenditure (for farrier and client).

Some horses upset by the smell.

(8)

5.4 5.4.1 Thrush.

(1)

5.4.2 Contracted heal/atrophied frog.

(1)

5.5 5.5.1 Lying on side with legs too close to wall or fence so as to be unable to get legs under itself to stand up.

(2)

5.5.2 Rolling due to colic/or just rolling in stable or paddock.

(1)

5.5.3 Rope legs closest to floor and roll horse over his withers so legs are now away from wall, remove wall/partitioning if possible.

(2)

[25]

QUESTION 6

6.1 2.5% of 500 = 12.5 kg DM per day. 18% protein as it needs muscle repair from strenuous exercise and to grow as he is only 3. 50 : 50 to 40 : 60 concentrate to roughage ratio. Ca : P ratio should be roughly 2 : 1

(7)

6.2 Decrease amount of concentrate on day off to avoid exertional rhabdomyolysis the next time the horse is worked.

(2)

6.3 Bran has poor ratio and can lead to Millers disease/big head bran disease.

(2)

- 6.4 Digestion in hindgut by microbes/bacteria starts in the caecum.
Starts in the caecum.
Microorganisms produce enzyme cellulase.
Roughage is not digested in the small intestine.
Fermentation also assists digestion.
Fibre digested into volatile fatty acids.
These VFAs are used for energy and enterocyte health. (8)
- 6.5 6.5.1 Horses in hard work with low roughage to concentrate ratio are predisposed to ulcers. (1)
6.5.2 Stress, high workloads, low fibre diets. (3)
6.5.3 Pain 30 min after eating, grinding teeth, blood in stool, colic, weight loss, change in behaviour. (any three) (3)
- 6.6 6.6.1 Salt, MSN, probiotics, any joint, coat, hoof, health supplement. (any two) (2)
6.6.2 Must justify use of two named, e.g. MSN used for cartilage health to keep joints DJD free, biotin used in forming protein to keep hooves strong and healthy. (2)

[30]

90 marks

SECTION C**QUESTION 7**

Facts: 40 marks; Quality of essay: 10 marks

40 Facts to be incorporated into essay:

Must include the following description and anatomy:

- Lamella attach the pedal bone to the inner hoof wall
- Interleafed vascular tissue sensitive and non-sensitive
- Laminitis is inflammation
- And failure of this structure
- Weight of horse and pull of deep digital flexor tendon on pedal bone
- Causes sinking and rotation of pedal bone known as founder.

Must include the following signs of laminitis:

- Bounding digital pulse
- Lameness/reluctance to walk
- Typical stance, weight shifted to hind limbs
- Depression around coronary indicates sinking of pedal bone

Must include the following predisposing causes:

- Increased lush grass or cereal intake
- Increased weight-bearing on one leg (lameness, unbalanced feet)
- Retained placenta and other infections
- Toxins released from gut (colic, diarrhoea, metritis)
- Cushings disease (insulin resistance)
- Excessive or long-term steroid use
- Excess stress (infrequent trimming and shoeing, concussive forces, overweight, long-distance travel)

Must include the following explanations:

- Excess/overspill of carbohydrates rapidly fermented by bacteria
- Cause disturbance by making gut acidic
- This causes death of good bacteria and release of toxins
- The lush grass contains fructans that act like sugars
- Fructans is the storage form of carbohydrates and at their highest in the grass in young, growing grass on a cold, frosty, sunny morning

Must include the following management/prevention of laminitis:

- Never overfeed anything (grass and cereals) feed little, often
- Watch weight of ponies with weight tape and condition score to avoid them being overweight
- Restrict grazing by using a muzzle
- Exercise is important for weight control and blood flow to hooves
- Avoid cereals rather feed high fibre and oil
- Probiotics to normalize gut function
- Store concentrates where ponies cannot get to them
- Only give drugs prescribed at recommended dose
- Need optimal micronutrients in repair phase and feed often restricted

Treatment and prognosis:

- Pain relief
- Soft supportive surface (sand)
- Specialised trimming and shoeing
- Clogs, bar shoes, reverse shoes, barefoot, sole pads, heel wedges, reduce toe (any one mentioned)
- Desmotomy to stop rotation
- Hot and cold therapy
- Prognosis depends on sinking, rotation of pedal bone
- Prognosis depends on response of horse to treatment
- Prognosis depends on horse's acceptance of treatment (sling, pain)

Rubric:

Criteria	10 marks	8 marks	6 marks	4 marks	1 mark
<ul style="list-style-type: none"> • Quality of content • Relevance • Accuracy • Correct terminology • Cohesion/structure 	All correct	Minor flaws	Significant flaws in one area	Significant flaws in two or three areas	Significant flaws in all areas

50 marks

Total: 200 mark