NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2021

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
1 E
2 D
3 A
4 B
5 G
6 F
7 C

1.2 1.2.1 A fluid-filled sac that cushions tendons and bones.

1.2.2 Fluid produced in the liver that breaks down fats in the intestine.

1.2.3 The time it takes the heel to leave the ground once the toe has lifted.

1.2.4 An allergic response to the environment/ substances.

1.2.5 A disease vector is any agent which carries and transmits pathogen into another living organism, e.g., midge

1.3
1 long pastern / P1 / first phalanx
2 short pastern / P2 / second phalanx
3 coronet band
4 coffin bone / pedal bone / P3 / third phalanx
5 hoof wall
6 sole
7 frog
8 navicular bone
9 deep digital flexor tendon

1.4 1.4.1 An illness / sickness / condition caused by a living organism / microorganism or other agent, such as a bacterium, fungus, or virus, that enters the body of an organism, e.g., AHS, EEV, West Nile virus, tetanus

1.4.2 An infection that is spread through contact with other infected organisms. Contact with the bodily secretions of such horses, or with objects that they have contaminated, can also spread this kind of disease, e.g., strangles, flu, EHV

1.5 1.5.1 Equine encephalosis virus

1.5.2 Equine herpes virus

1.5.3 Equine gastric ulcer syndrome

QUESTION 2

2.1 2.1.1 The lymphatic system of the horse.

2.1.2 A. Lymph nodes or Lymph glands (Accept either)
B. lymph vessels.

2.1.3 No pump, carries lymph fluid, moves fluid by the massaging effect of working muscles, non-symmetrical system, blind-ended vessels.

2.1.4 The spleen

2.1.5 Oedema is the accumulation of fluid in tissues.

2.2 2.2.1 These bar charts show weight is lost from 450 kg (pre-ride) to 400 kg (40 miles) yet plasma concentration does not see a huge change despite the weight loss. The most significant mineral loss is chloride, minimum change to potassium, moderate loss of sodium. The body will regulate the plasma concentration to keep it consistent regardless of weight lost due to sweating. Body content levels change more than the plasma levels.

2.2.2 Chloride

2.2.3 Sodium, chloride, potassium, calcium, phosphorus, magnesium.

2.2.4 Causes:

- Excessive sweating: the sweat produced by horses is hypertonic, meaning it contains more salts than fluid or loss of electrolytes.
- Ambient temperatures: water consumption due to low ambient temps rapid decrease in water consumption during cooler weather.
- Underlying health conditions may also result in hydration issues.
- Clean, fresh water not being available.
- Overworked for fitness level.

Symptoms:

- Gum colour in mouth changes to pale at rapid rate, poor capillary refill
- Gums: gums are dry to the touch
- Increased heart rate: above 42
- Tent test – skin is not as elasticated
- Respiration rate is rapid and shallow

SECTION B

QUESTION 3

3.1 Increase in stallion-like behaviour / performance
This will make the stallion more profitable and useable by a breeder

3.2 As stated, this product has been clinically researched and tested

3.3 Accept any 3

- Increased exercise stimulates growth
- Provide balanced nutrition: good-quality protein, minerals
- Provide supplements such as Biotin or Lysine
- Use good footing or surfaces
- Use a farrier that is qualified, correct depth of trimming stimulates hoof growth
- Preserving moisture in the hoof and not letting it dry out

3.4 It would be:

- Licking its lips
- Lowered head
- Lets out long deep breaths
- Remains still
- Tail is relaxed
- Ears are floppy
- Lower lip is relaxed
- Rapid blinking
- Yawning
- Eyes closed/half closed

3.5 Shortens rehab time by increasing circulation
which will increase healing
materials for healing will be supplied in the blood

3.6 3.6.1 ± 6 months

3.6.2 ± 8 months

3.6.3 ± 6 months

3.7
- Lameness, especially when a horse is turning in circles; shifting lameness when standing.
- Hot feet.
- Increased digital pulse in the feet (most easily palpable over either sesamoid bone at the level of the fetlock).
- Pain in the toe region when pressure is applied with hoof testers.
- Reluctant or hesitant gait ("walking on eggshells").
- A "sawhorse stance" with the front feet stretched out in front to alleviate pressure on the toes and the hind feet positioned under them to support the weight that their front feet cannot.
- Depression
- Lack of appetite

3.8 3.8.1 Type 2A High-oxidative fast-twitch muscle fibres

3.8.2 Type 2B Low-oxidative fast-twitch muscle fibres

3.8.3 slow

3.8.4 very fast

3.8.5 high levels of tension or low levels of tension accepted

3.8.6 lower levels of tension of high levels of tension accepted

3.8.7 medium/moderate

3.8.8 low

3.8.9 low

3.8.10 medium/moderate

3.9 Increases blood sugar levels

and any one of the following:

- immune suppressant
- protein, fat and carb metabolism
- reduces bone formation
- regulates inflammation

QUESTION 4

4.1 Check vehicle:

- fuel tank is full
- tyre pressure is correct
- lights are working
- suitability to tow (Tare versus GVM)
- vehicle is generally road-worthy

Check box:

- safety of the ramp
- licence is valid
- compatibility of the electric wiring of the trailer and car
- tyre pressure is correct
- floor is sturdy and not damaged
- box is big enough to transport horses comfortably
- vehicle is generally roadworthy

4.2 EB or EC1 or EC or Code 10

4.3 4.3.1 Travel sickness/shipping fever

4.3.2 RAD – recurrent airway disease

Symptoms:
- coughing
- nasal discharge
- difficulty breathing
- a heave line
- reluctance to work

Causes:
- Allergy

to any one below:
- Mould in hay
- Dust in hay
- Dust in environment

Prevention:
- Horse lives outside
- Well-ventilated stables if stabled
- Sack or wet hay and feed
- Drugs: cortisone and anti-inflammatories from vet
- Dust free bedding

4.3.3
- wet hay
- move horse from box every 3 or 4 hours
- well-ventilated box
- increase dose of steroids on vet's advice

4.4 Right side the camber of the road can cause an imbalance in the horse trailer if horse on the left-hand side. If a wheel goes off the road on the passenger side, it will unbalance the box.

4.5 4.5.1 The tare of the vehicle is lower than the GVM of the trailer. The vehicle will be unable to brake efficiently. Or License expired.

4.5.2 An air brake/additional braking system can be fitted to the trailer by an authorised provider. Or Renew license

4.6
- Daily temps taken
- Own grooming equipment
- Isolate all new horses coming into the yard.
- Regularly disinfect grooming kits, rugs and clothing.
- Steam clean & disinfect transport when used by strange horses.
- Disinfect stables weekly and before new horses arrive.
- Wash feed bowls thoroughly after use.
- Adhere strictly to isolation protocol.
- Vaccinations must be kept up to date.
- Do not allow horses to sniff strange horses over boundary fences on the property (by using electric tape, etc.)

4.7
- financial records
- dates of farrier visits.
- dates of when vaccinations were administered.
- dates of saddle fitter appointments.
- dates dental visits.
- dates deworming/faecal egg counts.
- incident register
- bedding and food delivery dates

QUESTION 5

5.1 3 months/foal because the skeleton is growing. (37 g for a 3-month-old foal)

5.2 Small intestine

5.3 Balancer Dicalcium Phosphate Limestone flour sugar beet lucerne

5.4
- Shifting lameness
- Fractures
- Swollen face
- Swollen jaw
- Loose teeth
- Tooth root infection
- Pain during eating
- Difficulty chewing
- Separation of upper and lower incisors
- Nasal collapse
- Reduced growth

5.5 Low levels of calcium in the blood

5.6 Sodium, chloride, magnesium, potassium, phosphorus

5.7 5.7.1 Tying up, (Exertional Rhabdomyolysis/azoturia/Monday morning sickness) muscles tears, dehydration, colic, tendon/ligament ruptures.

5.7.2 Tying up (Exertional Rhabdomyolysis/azoturia/Monday morning sickness):
- Muscle spasm due to dehydration/electrolyte imbalance due to working in excess of fitness.

Symptoms:
- excessive sweating.
- muscle stiffness/hardness.
- reluctance to move, muscle tremors

Management:
- call vet
- keep warm
- hydrate
- vet will give muscle relaxant, drench with electrolytes

Prevention:
- only work a horse to its fitness level
- can cause damage to kidneys if muscle breaks down and is excreted
- weigh food portions

Muscles tears:
- Muscle fibres are torn to overworked tired muscles

Symptoms:
- visual change in muscle
- muscle spasm
- lameness
- reluctance to move
- pain on palpation

Management:
- physiotherapy
- vet gives anti-inflammatories
- rehab program
- box rest if needed
- ultrasound

Prevention:
- only work horse to its fitness level
- can have reoccurring problems if not rehabilitated/heal properly

Dehydration:
- Loss of water in the body

Symptoms:
- dry gums
- slow capillary refill time
- positive for tent test
- lethargic

Management:
- call the vet
- hydrate
- drench with electrolytes
- drip if necessary
- electrolytes in feed

Prevention:
- only work a horse to its fitness level
- electrolytes on a daily basis
- monitor water intake
- add salt to the diet

Colic:
- General term for abdominal pain

Symptoms:
- lethargy
- looking at stomach
- kicking at stomach
- sweating
- high TPR
- rolling
- pawing
- not eating
- not drinking
- reduced droppings
- reduced gut sounds

Management:
- call the vet
- take food and water away
- keep horse safe from hurting himself
- hand-walk if needed
- vet will do rectal
- drench
- give anti-spasmodic
- painkiller
- surgical intervention may be needed

Prevention:
- adhere to all feeding rules
- do not change diet suddenly
- avoid dehydration
- avoid over-stressing horses
- control parasites
- avoid feeding off sand
- regular dental care

Never ignore colic in a horse the longer you wait the more extensive the treatments will be.

<u>Tendon / ligament injury</u>:
- Tendon/ligament fibres are torn/damaged overworked tired muscles, tendons take over the job of the muscles.

Symptoms:
- visual change to tendons in legs (bow)
- lameness
- reluctance to move
- pain on palpation
- inflammation
- heat

Management:
- immobilise horse
- ice / cold hosing
- vet gives anti-inflammatories
- rehab program
- box rest if needed
- bandage if necessary
- controlled exercise

Prevention:
- only work horse to its fitness level
- can have recurring problems if not rehab/heal properly

5.8 Feed plan

- Should feed 2.5% of body weight, the horse weighs 400 kg, feed 10 kg of food should feed a 1% min fibre = 4 kgs
- The roughage-to-concentrate ration for a horse medium work = 50/50 or 60/40
- Water must be available
- Vitamin and minerals must be balanced, especially Ca:P which must be 2:1 as growing
- Do not overfeed with carbohydrates to avoid growth issues
- Provide good-quality hay/lucerne
- protein % should be 12% to 14% as working and also growing

PLUS depending on what was chosen above:

For tying-up (ER):
- low carbs
- add vitamin E & selenium
- electrolytes in feed

For muscle tears:
- reduce roughage/concentrate as will be on a maintenance diet during recovery,
- increase protein for repair

For dehydration:
- add salt or electrolytes to feed

For colic:
- take concentrates away until recovery completed
- reintroduce feed slowly
- probiotic/prebiotic

For tendon/ligament injury:
- reduce roughage/concentrate as will be on a maintenance diet during recovery
- increase protein for repair

SECTION C

QUESTION 6

6.1
- A single copy will show no clinical signs.
- The gene can be present in the gene pool yet go undetected as it is recessive.
- Recessive foals are frequently not born at term.
- Early embryonic loss may occur at some point during gestation, and very rarely do breeders see an affected foal born live.

Any 1 of the above

6.2 A warmblood is a cross of a hot-blooded (thoroughbred. Arab) and a cold-blooded horse (Draughts)

Any 1 below

- The combination created an athletic yet dependable sport horse
- Mostly used for specific disciplines, dressage and jumping
- There are many warmblood breeds, e.g., Hanoverian

6.3
- Gene pool remains small.
- Spread of unknown genetic diseases.
- Limits the evolution of the sport horse.
- Flaws stay in the breeds.

6.4 It is a disease caused by an error in the genes/ An abnormality in the DNA/ A mistake in the genetic makeup of an organism. They are passed down the generations.

6.5
- Not breed 2 WFFS horses
- Testing of both stallion and mare will pick up the disease before breeding.
- Before mares and stallions are paired.
- Wider pool of stallions is encouraged.

6.6
- Does not carry genetic diseases
- Most importantly – Is the stallion fertile? Has it been tested?
- Will its pedigree suit your mare?
- Is its conformation suitable, does it have any obvious faults?
- Will the stallion upgrade your mare if it has faults?
- Does the stallion have presence and quality?
- Was the stallion a success on the track, or is it unraced? (Bearing in mind there have been many successful stallions that have unraced records.)
- Does it have a good temperament? This will influence your foal's behaviour and temperament. Does the stallion "stamp" its foals with its quality and good features? Look at its size and conformation too.
- Cost
- Accessibility
- AI (artificial insemination) versus natural

6.7 Failure to receive sufficient antibodies results in a condition known as 'failure of passive transfer of immunity' (FPT)
and this significantly increases the risk of the foal developing life-threatening infections such as septicaemia (blood infection) or septic arthritis (joint ill) Foals start making their own antibodies after three to six weeks of age but are clearly at risk prior to this.
Plasma and antibodies are administered
Frozen colostrum is often given to foal
Colostrum intake must be monitored after birth

6.8 Healthy:

- Moving around immediately at birth (once the ribcage has passed through the mare's vulva)
- Pink gums (mucous membranes)
- Eyelids turned in the right way
- Sternally recumbent within one to two minutes (chest and head upright – like a dog)
- Standing within one hour (fillies can stand as early as after 45 minutes, some colts take closer to 1,5–2 hours, but they should start trying to stand pretty quickly)
- Suckle reflex approx.10–20 minutes
- Drinking within two hours (if not, then give a bottle feed to ensure adequate colostrum)
- Meconium passed within two to three hours
- Heart rate 80–120 bpm
- Breaths 30–40 bpm
- Temperature 38 °C–39 °C
- Capillary refill 1–2 seconds

6.9 6.9.1 Dummy foal syndrome.

6.9.2 A manoeuvre to simulate pressure from the birth canal and helps to "reboot" the brain.

The method involves threading a rope in fixed loops around the neck and chest of the foal.

With the foal laying down, apply gentle tension on the rope and then squeeze the foal for 20 minutes.

When released, the foal may spring to life/ have more energy.
The foal will often begin to nurse immediately after the procedure.

Total: 200 marks