

# 2018 VCE VET Equine Studies examination report

## General comments

Overall, students performed well on the 2018 VCE VET Equine Studies examination, with the majority of students attempting all questions in both sections of the examination.

While students were able to identify different conformation features, many students lacked understanding of breed features as well as the application of function. This was highlighted in Section B, with questions requiring students to apply their knowledge of equine form and function.

Students demonstrated a comprehensive knowledge of horse health and welfare across both sections of the examination.

Generally, students displayed a good understanding of nutrition in Section A, the multiple-choice component of the examination; however, many students were not able to apply their knowledge of nutrition in Section B.

A very good understanding of what each question was asking, was demonstrated by students. However, students should be aware that answers that are too generalised or that do not specifically relate to the question cannot be awarded marks.

The 2018 written examination contained a variety of questions, covering content from the following units of competency:

- VU21402 Implement horse health and welfare practices
- VU21403 Implement and monitor a horse feeding program
- VU21404 Relate equine form and function
- VU21406 Equine physiology

## Specific information

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

## Section A – Multiple-choice questions

The table below indicates the percentage of students who chose each option. The correct answer is indicated by shading.

Question	% A	% B	% C	% D	Comments
1	39	5	3	53	The production of red blood cells is in the skeletal system and circulated by the cardiovascular system.
2	53	3	40	4	Students needed to know the breed types of horses to answer this question correctly.
3	2	3	95	1	
4	98	2	0	0	
5	8	11	0	82	
6	10	83	6	1	
7	9	3	61	27	Students lacked understanding of the bot fly life cycle.
8	13	24	43	21	The 21-day length of the ovulation cycle for a mare is fundamental knowledge for the reproduction system.
9	7	48	12	34	For horses to be cow hocked, the base is wider with the toes slightly out; this promotes the position of the hocks to be closer together.
10	8	0	93	0	
11	1	94	5	0	
12	55	8	14	23	The immune response to injury or disease is a function of the lymphatic system and the transportation of waste around the body is a function of the cardiovascular system.
13	12	56	28	5	
14	93	3	0	4	
15	2	1	5	93	
16	11	10	65	14	Developmental orthopaedic disease (DOD) is a direct result of weanlings being fed a high-grain diet.
17	14	23	33	29	When the stifle joint is too straight this limits the movement of ligaments of the patella, causing slipping and locking related issues.
18	5	6	83	6	
19	8	3	11	79	
20	33	38	8	21	Horse sweat contains a large quantity of chloride, followed by sodium, potassium and smaller amounts of magnesium and calcium. An electrolyte replacement product needs to replicate these quantities.

## Section B

### Question 1a.

Marks	0	1	Average
%	9	91	<b>0.9</b>

Every six or 12 months or annually

### Question 1b.

Marks	0	1	2	Average
%	19	43	38	<b>1.2</b>

Reasons why more frequent dental checks may be required for a horse include (two of):

- parrot mouth
- monkey mouth
- sow mouth
- wave mouth
- overbite
- underbite
- dropping food/quidding
- old age/geriatric horses
- missing or loose teeth
- fed large quantities of grain
- problems with tooth development in younger horses
- high/intensive levels of competition.

### Question 2

Marks	0	1	Average
%	35	65	<b>0.7</b>

Right lead canter is a three-beat gait with the following footfalls:

2     3  
1     2

Many students confused the order of footfalls.

### Question 3

Marks	0	1	2	Average
%	8	32	59	<b>1.5</b>

Negative health consequences, other than colic, for a horse if not fed correctly are (two of):

- azoturia/tying-up/RER/Monday morning disease
- laminitis/founder
- obesity/excessive weight gain
- excessive weight loss
- gastric ulcers
- polysaccharide storage myopathy (PSSM)
- stringhalt
- hyperlipaemia

- bighead
- diarrhoea
- developmental orthopaedic disease (DOD).

**Question 4a.**

Marks	0	1	Average
%	16	84	<b>0.9</b>

The integumentary system (skin) is affected by dermatophilosis.

**Question 4b.**

Marks	0	1	2	Average
%	36	17	48	<b>1.1</b>

Specific examples of dermatophilosis include:

- mud fever
- greasy heel
- rain scald.

**Question 5a.**

Marks	0	1	2	3	Average
%	14	31	42	13	<b>1.6</b>

The physiological systems impacted by strangles are the upper respiratory/respiratory and lymphatic systems.

Strangles is a highly contagious/infectious bacterial infection. Many students described strangles as a virus.

**Question 5b.**

Marks	0	1	2	3	Average
%	34	29	25	11	<b>1.2</b>

Students were required to detail any two of the following, to demonstrate understanding of symptoms of strangles:

- thick yellow nasal discharge
- pus draining from the nose
- swollen lymph nodes
- abscesses under the jaw.

Students were not awarded a mark for 'nasal discharge', as the response was too general.

One mark was awarded for the following:

- fever/high temperature
- loss of appetite
- difficulty swallowing
- lethargy
- depression.

Students were not awarded a mark for answering 'difficulty breathing'.

**Question 6a.**

Marks	0	1	Average
%	43	57	0.6

Plaiting

**Question 6b.**

Marks	0	1	2	Average
%	33	53	14	0.8

- toe-out
- base narrow/narrow chest

Many students responded with 'toe-in' instead of 'toe-out'.

**Question 7a.**

Marks	0	1	2	Average
%	21	34	45	1.3

Both:

- palatability – tastiness or enjoyment of the feed/good taste/pleasant to eat/good flavour
- digestibility – how easily the nutrients can be extracted from the feed once the feed is eaten.

Many students did not understand the meaning of palatability; however, the majority had a good comprehension of digestibility.

**Question 7b.**

Marks	0	1	Average
%	31	69	0.7

Molasses

**Question 8a.**

Marks	0	1	2	Average
%	43	9	48	1.1

Tendons join muscle to bone; ligaments join bone to bone.

**Question 8b.**

Marks	0	1	Average
%	2	98	1

Muscular, skeletal or musculoskeletal system

**Question 8c.**

Marks	0	1	Average
%	64	36	0.4

In the neck or along the crest of the neck

A large percentage of students did not know the nuchal ligament.

**Question 9a.**

Marks	0	1	Average
%	33	68	<b>0.7</b>

Oxygenation of blood, transportation of oxygen around the body

Students could mention carbon dioxide elimination, but not in isolation – oxygenation needed to be mentioned first.

**Question 9b.**

Marks	0	1	2	Average
%	24	38	38	<b>1.2</b>

Capillaries of the cardiovascular system envelop the alveoli in the lungs and as the horse inhales/breathes/respire, oxygen moves from the alveoli into the blood, which is then transported around the body.

**Question 9c.**

Marks	0	1	Average
%	69	31	<b>0.3</b>

A bleeder

**Question 10a.**

Marks	0	1	2	Average
%	58	30	12	<b>0.6</b>

- hoof is boxy in appearance
- abnormally upright
- hoof axis angle 60 degrees plus
- long contracted/narrow heels
- a prominent or bulging coronary band

**Question 10b.**

Marks	0	1	2	Average
%	54	37	9	<b>0.6</b>

- reduced contact of frog to ground due to contracted heels means increased concussion/more jarring on the hoof wall and the coffin/pedal bone
- sole is thinner at the toe, which can lead to bruising
- increased strain on tendons/joints

**Question 11a.**

Marks	0	1	Average
%	8	92	<b>0.9</b>

By vaccinating, cleaning wounds with antibacterial medication and/or maintaining a clean paddock

**Question 11b.**

Marks	0	1	2	3	Average
%	10	24	40	27	1.8

- through bacteria in the soil/manure
- bacteria enters an open wound/puncture wound
- affects the nervous system

**Question 12a.**

Marks	0	1	2	Average
%	13	40	47	1.4

Any two of the following:

- scales
- weight tape
- nomogram (BC score and HH give weight)
- formula:  $(\text{girth} \times \text{girth}) \times \frac{\text{length}}{12\,000} = \text{weight kg}$

Body scoring was not awarded a mark as this is a measure of condition and not a measure of weight.

**Question 12b.**

Marks	0	1	Average
%	9	91	0.9

30 mL

**Question 12c.**

Marks	0	1	2	Average
%	10	44	46	1.4

Disposable gloves and safety glasses

Many students did not relate the PPE items to the scenario given.

**Question 12d.**

Marks	0	1	2	3	Average
%	4	27	43	26	1.9

- hazardous waste (syringe and gloves) disposed of correctly
- wormer returned to correct storage
- records completed – horse name, date, wormer type and dosage, person administering treatment
- checking manure for any worms
- monitoring horse for reactions (e.g. allergy or colic symptoms)
- hands washed before and after for contamination prevention

A response of ‘tell supervisor’ was not accepted unless it related to completing record keeping.

**Question 13a.**

Marks	0	1	Average
%	15	85	<b>0.9</b>

All the time, 24/7

**Question 13b.**

Marks	0	1	Average
%	53	48	<b>0.5</b>

Any one of the following:

- electrolyte imbalance
- colic
- Cushing's disease
- diarrhoea
- fever/elevated temperature
- excessive sweating
- endotoxaemia (causing renal failure)
- anaphylactic shock (allergic reaction)
- bacteria in bloodstream.

**Question 13c.**

Marks	0	1	2	Average
%	45	35	20	<b>0.8</b>

Any two of the following:

- extreme exertion
- overwork
- hard or heavy work and very hot/very humid weather
- long periods of travel
- not drinking due to reduced water quality/contaminated water.

**Question 13d.**

Marks	0	1	2	Average
%	22	48	31	<b>1.1</b>

Any two of the following:

- dry gums/darker gums
- longer capillary refill time
- tucked up appearance in flanks
- sunken eyes
- sunken anus
- slow recovery after exercise
- lethargy
- depression
- dull eyes
- thick/sticky saliva
- discoloured/brown urine



- hard/dry manure.

**Question 14**

Marks	0	1	2	3	4	5	6	Average
%	26	10	34	3	16	5	5	2.1

Any three of the following:

- short, strong back (for weight bearing and wither at same height or slightly higher to allow horse to sit on hindquarters into sliding stops and gives better agility for turning)
- straight front legs with flat knees/good sized fetlocks sloping pasterns (assists with concussion absorption and soundness)
- sloping hip/short coupling (easy engagement into sliding stops and greater balance)
- short, strong cannons/ample bone (allows for fast movement and durability)
- slight cow hocks (easier sliding stops and moves hocks to the inside of the hoof when sliding)
- neck tied in low at the chest (allows for lower head set while maintaining balance and self-carriage)
- sloping shoulder for greater length of stride and agility
- strong gaskins (required for sliding stops)
- back cannons at a slightly forward angle (easier for sliding stops to sit on hindquarters), sickle hock description accepted
- strong, muscular hindquarters (required for powerful acceleration)
- steeper croup for greater agility and lateral movement.

**Question 15**

Marks	0	1	2	3	4	5	6	7	8	Average
%	1	0	3	3	3	13	27	32	19	6.3

Scenario 1:

Hazards – any one of the following:

- horses crowding/crushing/fighting/kicking out in competition for feed
- manual handling
- placement of feed bins
- uneven ground/terrain

Associated risks – any one of the following:

- person gets pushed/shoved/struck/kicked/bitten
- back strain
- trip/fall

Associated controls – any two of the following:

- take whip into paddock to maintain personal space
- have someone assist
- use a trolley
- secure feed bins to fence line so no entry to paddock needed
- PPE – helmet and back protector

Scenario 2:

Hazards – horse moving around, stamping leg, striking or kicking.

Associated risk – being trodden on, kicked, struck, pushed over or bitten.

Associated controls – any two of the following:

- use hose from a distance to clean wound
- place horse in equine crush
- get assistance/have someone hold back leg up on same side using a towel around pastern
- use neck grip to restrain the horse
- use spray rather than lotion or cream to maintain distance
- chemical restraint/sedation
- PPE

Students were not awarded a mark for responding with a handler or themselves sedating the horse.

### Question 16

Marks	0	1	2	3	4	5	6	7	8	9	Average
%	3	2	7	11	16	14	15	15	12	5	5.2

Feed brand names (e.g. Hygain Equine Senior, Mitavite Gumnuts, Barastoc Senior, Mitavite Breeda, Hygain TruBreed, Hygain Powertorque, Hygain Tracktorque, Riverina Racehorse Performance Blend) were accepted provided the other necessary information was included.

The question asked students to demonstrate understanding of the special requirements of different horses, knowledge of nutrients and principles and practical aspects of feeding and management.

Horse A

Feeds:

- small grain/energy component should be fully processed
- high-protein soybean meal
- chaff and rice bran provide fibre
- energy can also be given in the form of vegetable oil
- molasses can be added to improve palatability
- hay is good if horse has no problems chewing

Reasons:

- decreased nutrition absorption
- dental problems
- environmental stress and disease mean older horses need special feeding
- decrease in the production of amylase means starch is not as well digested and ends up in the hindgut where microbial fermentation of starch produces lactic acid, making the horse more susceptible to laminitis and colic
- digestive tract inefficiency can be compensated by feeding highly digestible feeds
- dental problems of very worn or missing teeth can lead to choke if horses are fed rations that are hard to chew
- they are less able to tolerate changes in temperature so must have shelter

Delivery:

- small meals are better
- small mixed feed in the morning and afternoon can be soaked in warm water to make it easier to eat
- feed in the yard away from the mare as old horses are less likely to defend their food
- good quality grass hay can be fed to both horses at night as this will help keep them warm from the inside due to microbial heat production

- use BC score to adjust amounts of supplementary feed given
- feed to be wetted down

#### Horse B

##### Components:

- supplementary feeding should focus on good quality protein, high-energy forage like good pasture and lucerne hay
- grains should be kept to a minimum to avoid digestive upsets and be introduced a few weeks before foaling, not when she foals as this can lead to colic or founder
- oats are the most digestible of grains and can be processed to assist digestibility, as can other grains like maize

##### Reasons:

- mare is producing milk to feed the foal so needs extra energy, protein, calcium, phosphorous and vitamins, even if she is on good pasture
- insufficient feeding means she will tap into her own body reserves to produce milk for the foal

##### Delivery:

- as the mare is on her own, there is no competition for food
- mixed feeds could be fed morning and evening and lucerne hay could be put out at midday
- feed to be wetted down

#### Horse C

##### Components:

- approximately three per cent of bodyweight (e.g. 15 kilograms) with a minimum 50 per cent roughage and 50 per cent concentrate. Chaff, hay (grass and lucerne) and rice bran provide fibre (and energy)
- oats, maize, sunflower seeds and soybean meal provide energy and protein
- vegetable oil can be added as an extra energy source without increasing grain component
- electrolytes should be added to replace those lost in sweat
- vitamin and mineral supplements can be added as required
- calcium/phosphorus ratio 1:1 or greater
- reduce concentrates on day off

##### Reasons:

- racehorses need fibre for proper gut function and to prevent gastric ulcers
- sufficient energy/concentrates to perform their work and maintain weight and fitness
- feed ration needs to be palatable – oats are very palatable and digestible
- reducing grain reduces risk of tying up

##### Delivery:

- as there is no ad lib grazing for this horse, the principle of little and often applies
- concentrates (mixed with some chaff) should be fed 25 per cent in morning feed (after work), 25 per cent at midday and 50 per cent in the evening
- hay nets making up the balance of the roughage could be fed out mid-morning, mid-afternoon and late evening to mimic grazing and to ensure the digestive system functions properly, which will reduce the likelihood of gastric ulcers
- feed to be wetted down

**Question 17**

Marks	0	1	2	3	4	5	6	Average
%	19	9	20	18	14	13	6	2.7

The question asked students to explain each element and how conformation is related to it. Both desirable or undesirable points of conformation were accepted.

Engagement is:

- increased flexion of the joints of the hind limb and the pelvis during the weight-bearing phase of the gait
- the hind legs step well under the body, the pelvis rotates, lowering the croup, elevating or lifting the forehand as the horse's centre of balance shifts further back to the hindquarters
- the head and neck, including the base of the neck, lift freely from the withers
- the neck must be set correctly and of a good length, with the head set cleanly on the neck with an open gullet to allow flexion at the poll
- greater impulsion or thrust is created from good engagement and this allows for extension, stretching and lengthening the outline of the stride and contributing to greater suspension in the trot and canter
- length of stride is also governed by the angle of the shoulder, which should be around 45 degrees, allowing the foreleg to reach forward
- a straight shoulder limits extension
- horses that are too straight behind, having little angulation of the hock, or too much – sickle hocks – will have problems with engagement because they cannot get their legs under their body
- horses need strong, muscular gaskins and hindquarters to create impulsion and should be longer from hip to hock than hock to ground
- their pasterns need to be slightly less sloping than their front pasterns (which should be about 45 degrees)
- the hocks work hardest, and joints should be strong, large and clean
- cannons need to be short with ample bone
- the croup should be lower than the withers to allow the horse to sit back more easily as balance shifts back.