

2015 VCE VET Equine Studies examination report

General comments

The 2015 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

A small number of students showed breadth of knowledge across all areas of the examination, but many did not show evidence of a sound underpinning knowledge of common conditions, breed traits, conformational aspects, the distinction between biohazards and OH&S issues, and a variety of horse management procedures.

In Section A, students needed to analyse the options in depth in order to select the option that they considered best answered each question.

For Section B, students needed to read questions carefully in order to identify what they had been asked to do. The verbs 'explain', 'identify' and 'justify' all required appropriate responses, such as:

- explain – relate causes and effects; make the relationship between issues, facts or events; provide reasons for the causes and effects
- identify – recognise and name an event, feature, element or condition
- justify – support with clear reasoning using an argument, decision and/or point of view and given data or knowledge.

For questions where a specific number of points is requested, students should prioritise their answers rather than respond with a lengthy or random list. Students should write the responses that they consider the most important or the most relevant, because only the required number is assessed. Also, answers that negate a previous statement or repeat earlier statements are not awarded marks.

It is recommended that students familiarise themselves with all of the terms listed in the elements, performance criteria, required skills and knowledge, and the range statements for each unit of competency. A valuable examination preparation strategy would be to revise range statement terminology prior to the examination.

Past examinations are available on the VCAA website and these are essential for pre-examination practice. Close scrutiny of the answers and the accompanying comments in the examination reports will help students gain an understanding of the scope and range of questions and also the ranges of acceptable answers.

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	% No Answer	Comments
1	3	3	6	88	0	
2	11	57	9	22	0	
3	3	14	77	6	0	
4	50	21	18	10	0	
5	3	81	14	2	0	
6	3	32	15	50	0	The withers should be prominent and well defined in order to hold a saddle in place, without excessive tightening of the girth; this will ensure maximum efficiency of movement. Horses with rounded or flat withers commonly have saddle-fitting issues and, consequently, this can be less comfortable and not ideal for the performing athlete. (A properly balanced horse will be higher at the withers than at the croup. When the withers are higher than the croup, the hindquarters are positioned more under the body, which enhances the horse's athletic ability.)
7	0	0	1	99	0	
8	84	12	1	3	0	
9	21	37	11	31	0	Hay nets are common in the industry and widely used. Tying hay nets securely at an appropriate height is a procedure listed in the range statement for 'VU21403 Implement and monitor a horse feeding program', and students should be familiar with this procedure. However, even if they were unfamiliar with this technique, careful analysis would have assisted students to realise that the drawstring being pulled upwards through the bottom ring (so that the rings on the top and bottom of the net are as close as possible) enables the bag, as it empties, to fold in half rather than sag downwards and become a potential hazard. Wither height would make access more difficult and uncomfortable for the horse, excluding options B and D.
10	27	50	21	1	0	

Question	% A	% B	% C	% D	% No Answer	Comments
11	17	19	49	15	1	When a horse is injured with a blow or hard bump to a muscle, a contusion or bruise is often the result. Bruising under the skin is almost always followed by swelling, because the underlying muscle fibres and connective tissues are crushed. Although the injury may not break the skin, the tissue damage can be significant.
12	5	0	5	90	0	
13	19	15	66	0	0	
14	24	40	21	15	0	A well-conformed general riding horse will have a short coupling and be long from hip to hock. 'Short' pasterns (options A and C) are not ideal. Option D would be disregarded as the closer to the ground the hock is, the better for stability and agility.
15	87	2	2	8	0	
16	0	100	0	0	0	The condition known as 'roaring' involves the respiratory system.
17	2	2	88	8	0	
18	50	11	27	12	0	
19	14	43	41	2	0	In the instructions to Section A, students are advised to select the answer that 'best answers' the question. While options A, B and D did contain some facts about wound management issues, the best answer was option C – the physiological fact that blood supply to this region is poor.
20	11	4	5	80	0	

Section B

Question 1a.

Marks	0	1	Average
%	23	77	0.8

Azoturia, exertional or muscular rhabdomyolysis, exertional myopathy, PSSM or polysaccharide storage myopathy

Many students were able to identify this condition, but few were able to spell it correctly. If spelling was incorrect, students were still awarded some marks.

Question 1b.

Marks	0	1	2	Average
%	11	37	51	1.4

Any two of:

- reluctance to move
- muscle stiffness/tremors/spasms
- agitation/distress
- sweating
- dark or brown urine.

Question 1c.

Marks	0	1	Average
%	64	36	0.4

Any one of:

- cease exercise
- keep horse warm
- massage to relieve muscle pain
- offer electrolytes.

Exercise should be ceased due to possible severe muscle damage caused by moving.

First-aid treatment consists of practical tasks performed by a handler before a vet is called. A response such as, 'Call a vet' was not awarded any marks.

Question 2a.

Marks	0	1	Average
%	40	60	0.6

Thrush

Students who could not identify the condition gave a wide range of incorrect responses, including abscess, laminitis and seedy toe. Thrush is clearly discernible from other foot conditions by the 'strong and unpleasant odour', which was indicated in the question, and by black ooze from the cleft or collateral grooves of the frog. Students need to familiarise themselves with the characteristics of common hoof conditions.

Question 2b.

Marks	0	1	Average
%	75	25	0.3

Any one of:

- black/foul/moist material or ooze in the frog clefts or collateral grooves
- softening/disintegration of the frog
- soft hoof tissue in the frog/cleft.

Question 2c.

Marks	0	1	Average
%	50	50	0.5

The probable cause is:

- bacterial/fungal infection
- poor stable hygiene
- foul, unchanged bedding
- not cleaning manure and urine from stables
- poor horse husbandry – not picking out hooves.

Students are reminded of the need to read the question carefully. The question clearly stated the horse was stabled, yet a number of students made reference to paddock environments and conditions. Such responses were not awarded a mark.

Question 3

Marks	0	1	Average
%	54	46	0.5

Skeletal or musculoskeletal system

A wide range of incorrect responses was given in response to this question. The performance criteria for 'VU21403 Implement and monitor a horse feeding program' states that 'potential consequences of incorrect feeding are identified', and 'protein' is listed as one of the factors in the range statement. Incorrect feeding of protein can have a severe impact on the skeletal system.

Question 4a.

Marks	0	1	Average
%	80	20	0.2

Coon foot or broken pastern axis

The most common incorrect response was 'sloping pastern'. All pasterns slope, so this response did not identify the specific condition. Students should ensure that they familiarise themselves with poor hoof conformation conditions, as listed in the unit of competency 'VU21404 Relate equine form and function'. They should look at as many diagrams as possible to consolidate their knowledge.

Question 4b.

Marks	0	1	2	Average
%	21	54	25	1

Any two of:

- it places undue strain on the tendons or ligaments/suspensory ligament under strain
- it weakens the fetlock joint
- it changes breakover of the foot
- it alters stride
- it increases the chance of injury/unsoundness.

Question 5a.

Marks	0	1	Average
%	83	17	0.2

Any one of:

- raised welt
- lumps
- bumps on skin
- skin rash.

Question 5b.

Marks	0	1	2	Average
%	80	4	16	0.4

Allergy to (any two of):

- feed/drugs/protein
- topical medications
- insect bites or stings
- pollen
- moulds
- plants.

Many students did not answer this question correctly, even though urticaria is listed specifically under 'Illness, injuries or abnormalities of skin' in the range statement accompanying the unit of competency 'VU21406 Equine physiology'. Many students incorrectly referred to foaling problems or urinary system problems.

Question 6a.

Marks	0	1	2	Average
%	22	41	37	1.1

A splint is:

- a bony enlargement of the small bones on the inside (mainly) of the cannon bone below the knee
- a stress fracture
- a calcification (or bony lump) on the cannon bone where it meets the splint bone.

It occurs due to:

- slight tearing of the ligament between the splint bone and the cannon bone
- working a young horse too hard
- working a horse on too hard a surface
- trauma to the area
- improper trimming of the hoof
- poor conformation.

Question 6b.

Marks	0	1	2	Average
%	57	27	16	0.6

The long-term change that occurs to the horse's leg is:

- new bone is produced and the splint and cannon bone are fused together
- a calcification or bony lump appears on the site.

The horse's performance is unaffected unless there is excessive enlargement that interferes with the suspensory ligament or function of the knee joint.

Some students answered this question correctly, but many students did not identify the location and many referred incorrectly to a splint being a 'bone chip', ongoing lameness and early retirement of the horse due to splint formation.

Question 7a.

Marks	0	1	2	Average
%	15	15	70	1.6

Possible hazards include the handler being:

- charged
- struck
- kicked
- bitten
- stood on
- pushed.

Most students correctly identified two hazards. A few, however, unnecessarily described reasons why the colts were likely to be excitable, and/or referred to injury to a colt rather than a handler.

Question 7b.

Marks	0	1	2	Average
%	70	12	18	0.5

The safe way to feed the colts would be to use feed bins that have an appropriate space between them and that are fixed at the fence line, so that feed can be placed in the bins and entry to the paddock is unnecessary.

A few students referred to taking numerous people into the paddock, wearing PPE (personal protective equipment) and taking a whip to keep the colts at bay, but these are not safe, workplace-practical or logical solutions.

Question 8

Marks	0	1	2	3	Average
%	12	34	42	12	1.6

Any three of:

- broad forehead/large forehead, wide/flat space between eyes, straight face line
- wide-set eyes; large, prominent and clear eyes with uniformly curved lids
- large/well-formed nostrils
- ears in proportion to head, alert carriage
- well-defined muzzle

- open gullet, smooth joining of head to neck
- upper and lower jaws (teeth) that meet evenly
- head in proportion to body.

Overall, students did not perform well on this question. Students needed to think carefully about the adjectives they used; ‘good’ ears and ‘bright’ eyes are not informative descriptions, whereas ‘ears in proportion to the head’ and ‘eyes wide-set for a good range of vision’ appropriately explained what was required. A number of students incorrectly referred to dishing of the face.

Desirable characteristics of an equine head are listed in the range statement for ‘VU21404 Relate equine form and function’.

Question 9

Marks	0	1	2	3	4	5	6	Average
%	0	7	19	26	26	14	8	3.5

This question required students to select two examples of horses in different scenarios and explain the special nutritional requirements for each. They needed to give factual responses based on the underpinning knowledge.

High-scoring answers were similar to the following responses.

A. a stabled racehorse in hard work

- 50% fibre, 50% concentrates, as a racehorse requires a high-energy feed to cope with the demands of strenuous work
- sufficient fibre to maintain gut function and help prevent gastric ulcers
- supplementary electrolytes, vitamins and minerals
- adequate protein for repair

B. a 25-year-old paddocked horse

- even if its teeth are maintained and pasture is good, the horse would still require supplementary feeding as digestive efficiency decreases with age
- a diet that has increased digestible fibre, protein with additional calcium and phosphorous and fat sources
- pelleted or micronised feed to facilitate chewing and digestion
- good quality (lucerne) hay when pasture is limited

C. a lactating broodmare

- high-quality pasture or hay is the basis of the diet, but its increased nutrient requirements in the first three months of lactation are high-quality protein (for example, lucerne or soybean)
- increased lysine (soybean/canola meal) for the foal
- increased carbohydrates (grains such as oats or maize), up to 8 kilograms per day

D. a performance horse returning from an extended spell

- for the first few weeks the majority of feed should be fibre/roughage with concentrates increasing as workload and energy demands increase
- supplements aimed at improving joint health, coat and hooves, and vitamin E to prevent muscle soreness and tying-up are often used
- as unfit horses sweat more, electrolytes can be added

E. a horse recovering from a severe bout of colic

- small amounts of good quality hay (not lucerne), with plenty of fresh water, should be offered every few hours over 24 to 48 hours to ensure normal gut function returns
- avoid feeding concentrates until horse is completely recovered

Most students scored some marks for relevant points made for each example. Students should be mindful of the terms they use; for example, phrases like ‘plenty of energy’ or ‘plenty of vitamins’ are not precise and do not convey the student’s underpinning knowledge. ‘Sufficient energy’, ‘adequate vitamins’ or ‘the RDI (recommended daily intake) of vitamins and minerals’ are more informative phrases.

Students also need to read the question properly. Some students referred to the broodmare’s ‘last trimester’, whereas the question clearly stated that it was a lactating broodmare – that is, a broodmare with foal at foot.

Question 10

Marks	0	1	2	3	4	Average
%	38	15	26	8	14	1.4

Biohazard	Example
fluids	blood, pus, nasal/eye/vaginal/penile/rectal discharge
waste	manure, hair, skin, tissue, hoof clippings, hoof debris (from being picked out), soiled bedding
refuse	dressings, bandages, swabs, worm-paste syringes
sharps	needles/syringes, scalpel blades

Only a few students could provide the correct response for two biohazards. Many students confused OH&S terms with biohazards. A biohazard is a biological substance that is potentially infectious and thus dangerous to people or the environment. These specific biohazard categories appear in the range statement for ‘VU21402 Implement horse health and welfare’.

Question 11a.

Marks	0	1	2	Average
%	31	37	32	1

- Growing horse: 1:1
- Mature horse : 2–6:1

Question 11b.

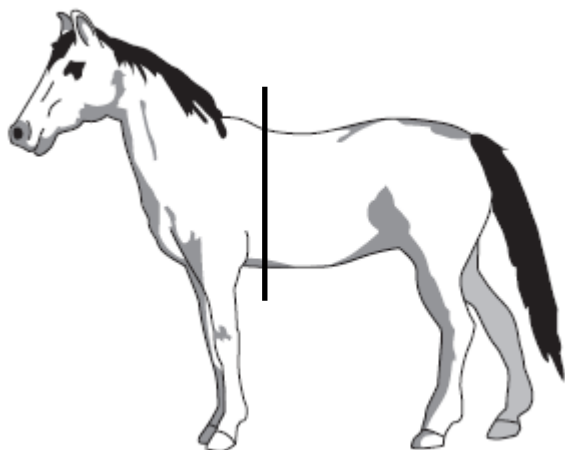
Marks	0	1	2	Average
%	71	24	5	0.4

- Calcium: developmental orthopaedic disorder (DOD)
- Phosphorous: bighead

Some students were able to give the correct ratios in Question 11a., but few students were able to give specific examples of resulting conditions due to deficiency in Question 11b. Those who did give examples mostly gave the responses above.

Question 12a.

Marks	0	1	Average
%	64	36	0.4



Students needed to read the question carefully. Question 12a. clearly indicated that a vertical line was required; however, a number of students drew horizontal or oblique lines in a variety of places on the diagram.

Question 12b.

Marks	0	1	2	Average
%	47	30	24	0.8

- a horse carries approximately 65 per cent of its body weight on its forelegs, but as training progresses it becomes more collected and engages its hind legs/brings its hind legs under its body
- this shifts the centre of balance backwards, and assists the horse with carrying the rider's weight more easily
- it also enables the forehand to become lighter and more elevated
- this lightness is required for correct execution of dressage movements

Question 13

Marks	0	1	2	3	4	5	6	Average
%	28	9	28	12	14	6	2	2

Any three of:

- short, thick, muscular neck (heavy in front and not flexible) – restricts flexion longitudinally and impacts on collection
- set of head and neck – restricts flexion at the poll and can lead to problems breathing
- straight, upright shoulder – shorter stride length impacts on ability to extend/built to pull rather than push from behind/problems with impulsion
- short, upright pasterns – increased concussion, short strides
- low withers – problems relating to correct saddle position affecting seat and balance of rider and therefore horse

- legs shorter in proportion to body height – hinders engagement
- camped-out position – limits ability to track up
- cow hocks – can limit lateral movement (depends on severity)
- short back – can limit flexibility.

Many students did not explain their points clearly and made a number of generalisations. Some students referred to the feathering on a Clydesdale's legs, which is not a conformational feature.

Question 14

Responses to this question varied. Some students answered Question 14a. correctly but did not provide a circumstance for Question 14b. and simply gave a generalised response such as 'in the breeding season'.

Students need to read questions carefully. Question 14c. stated, 'Which physiological systems are involved in the most frequently occurring behaviour as identified in part b.?' 'Systems' is plural, and two systems needed to be named.

Question 14a.

Marks	0	1	Average
%	70	30	0.3

Flehmen response

Question 14b.

Marks	0	1	Average
%	39	61	0.6

The behaviour identified in Question 14a. occurs most when a stallion is preparing to mate with a mare/identifying a new odour.

Question 14c.

Marks	0	1	Average
%	76	24	0.3

- reproductive
- endocrine
- nervous
- respiratory
- musculoskeletal

Incorrect answers included 'windsucking', 'smiling', 'after worming' and 'aggression'.

Question 15a.

Marks	0	1	2	3	Average
%	2	9	43	46	2.3

Any three of: dental problems, worm infestation, gastric ulcers, insufficient feed intake, insufficient energy from feed, digestive tract problems, throat obstruction, stress

This question was generally well answered.

Question 15b.

Marks	0	1	2	Average
%	32	15	52	1.2

Any one of:

- dental problems – check for signs like quidding, leaving feed, bad breath; get equine dentist out for a check-up
- worm infestation – check records for last worming treatment; get a faecal egg count; check for tail rubbing
- gastric ulcers – reduce grain intake; feed small amount of lucerne chaff (alkaline) before work to coat stomach lining and reduce ‘acid splash’; remove stressor (for example, dominant paddock horse); try a gastric ulcer supplement
- insufficient feed intake – may be bullied by another horse, so remove and monitor weight
- insufficient energy from feed – check nutrition against workload and adjust if necessary
- digestive tract problems – check manure for colour, consistency, smell, undigested grains
- throat obstruction (scar tissue) – check if food is being consumed by the horse; get vet to check throat with an endoscope
- stress – remove stressor (for example, separation anxiety or dominant horse); provide companion if necessary.

This question asked students to explain ‘how you would determine’ that the selected response was the cause of the weight loss. However, some students simply explained more about the possible cause; for example, ‘worms eat the food and so the horse misses out on vital nutrition’, rather than ‘check worming dates; get a faecal egg count’.

Question 16a.

Marks	0	1	Average
%	20	80	0.8

Arabian/Anglo-Arabian

Question 16b.

Marks	0	1	2	3	4	Average
%	20	15	27	28	10	1.9

This question asked students to discuss desirable characteristics and conformation features of the breed of horse identified in Question 16a. Answers included:

- Arabian ancestry (hot-blooded) means cardiovascular and respiratory systems have evolved to deal with long-distance work.
- Hot-blooded horses have a more efficient cooling system. Smaller horses like Arabs have greater surface area in relation to size, therefore more body area for sweat evaporation.
- Arabians have greater oxygen-carrying capacity in their blood, so they can work longer and harder without fatigue.
- Arabians are lightly muscled and moderately boned and can carry more weight in relation to their size.
- Long, lean muscles are less bulky, so they are better suited to endurance as they can keep working longer.
- They have a higher proportion of slow-twitch muscle fibres, which are able to sustain exercise over a long period of time.

- Leg length and angles of shoulder and pastern are ideal for long, easy strides and maximum concussion absorption.
- Hooves are compact, hardy and strong, to withstand distance work.
- Head and neck are well set, and coupled with large, open nostrils that maximise airflow.
- Well-sprung ribs allow greater lung expansion.
- Short backs have good weight-carrying capacity, so the horse will not tire as easily.

Most of the students who answered 'Arabian' or 'Anglo-Arabian' for Question 16a. were able to give appropriate characteristics and features that enhance the horse's endurance or long-distance suitability. However, many students gave answers that indicated a lack of familiarity with individual breed characteristics or knowledge of breed origins or purpose. Some answers were generalisations that did not include specific advantages.

Question 17a.

Marks	0	1	Average
%	17	83	0.8

Stringhalt

Some students did not identify the condition correctly, even though stringhalt is listed under 'Illness, injury or abnormalities of the nervous system' in the range statement for 'VU21406 Equine physiology'.

Question 17b.

Marks	0	1	Average
%	67	33	0.4

Ingesting flatweed or dandelion

Some students who had named the condition correctly in Question 17a. could not identify the weed for Question 17b. and referred only to 'toxic plants'.

Question 17c.

Marks	0	1	Average
%	59	41	0.4

Remove horse from the paddock where the weeds are and place in a clean paddock or in yards and feed it good quality hay.

Many students responded to Question 17c. with responses such as 'call the vet', rather than suggesting removing the horse from the paddock as the appropriate initial treatment. 'Initial' means occurring at the beginning; that is, the first step in a process. A vet might be called later but the initial treatment would be to remove the horse from the paddock containing the weeds.

Question 18a.

Marks	0	1	2	3	Average
%	4	17	41	37	2.1

- untack horse and complete a visual check for abrasions or cuts
- place horse in a sand roll, then remove and hose down
- hose down
- scrape excess water off
- place towel over loins, or light rug depending on temperature

- walk to cool down
- pick out feet and check shoes for twisting or looseness
- ice legs/bandage legs

Question 18b.

Marks	0	1	2	3	Average
%	5	46	39	10	1.6

- tie horse up and run hands down legs, checking for heat, swelling or tenderness; trot up on hard surface if lameness is suspected
- hydration check – use pinch test
- watch flanks/count for respiratory rate to return to normal
- monitor urine/manure production and check that the colour is normal
- observe behaviour and demeanour
- offer water – a small amount

Any electrolyte addition would be part of the feed regime.

Question 19

Marks	0	1	2	3	4	Average
%	6	8	32	14	40	2.7

Any two of the following methods:

- using weight tape – weight tape wrapped around girth and held at the withers indicates horse's weight
- using scales/platform – large animal scales are the most accurate weight indicators
- using weighbridge – (weight of car + horse float + horse) minus (weight of car + horse float) equals weight of horse
- using the following formula –

$$\text{weight (kg)} = \text{heart girth}^2 \times \text{body length (cm)} / 12\,000 \text{ [or } 11\,877]$$
- using a nomogram – a nomogram uses girth and length measurements to estimate weight.

'Measuring tape' on its own was not accepted, as all tapes measure; 'weight tape' was a more accurate description. Many students could not provide accurate methods and gave vague descriptions.

Question 20

Marks	0	1	2	3	4	5	6	Average
%	2	7	16	22	27	22	5	3.5

Students were assessed on the quality of the explanation of the key features and functions of each system, how the systems work together and how performance is affected.

Explanations could have included the following points.

- The cardiovascular system and the respiratory system work together in supplying oxygen to the body (or working muscles) via the red blood cells, where oxygen is bound to the haemoglobin. The oxygen is breathed in through the nostrils, then arrives in the lungs, and blood vessels that contain red blood cells transport oxygen throughout the tissues.
- The blood carries the oxygen to the cells where it is converted into energy and the waste product CO₂ is transported back to the lungs where it is exhaled.

- An unfit horse will have heart and respiration rates that increase significantly as it works, in order to supply sufficient quantities of CO₂ to the cells and have waste removed quickly.
- As the horse gets used to increased exercise, the cardiovascular and respiratory systems become conditioned and do not need to work so hard, so the horse's heart rate and respiratory rate will return to normal resting rates much more quickly once it is fit.

Overall, students answered this question very well, showing key knowledge and offering clear explanations of the two physiological systems and their co-dependence.

Some students discussed abnormal conditions (for example, roaring), which compromise the performance of the horse, rather than the general improvement in performance of the system by an exercise regime.