

2018 VCE VET Health examination report

General comments

The 2018 VCE VET Health examination was the first examination for the VCE VET Health program and contained a variety of question types: multiple choice, short answer, extended answer and case studies. Most students attempted all questions in each section of the examination.

The examination provided students with an opportunity to demonstrate their knowledge and understanding of the essential knowledge evidence identified in the two compulsory units of competency assessed:

- HLTAAP001 Recognise healthy body systems
- BSBMED301 Interpret and apply medical terminology appropriately

Students need to develop greater knowledge of the anatomical structures of the body systems, the function of each body system and the functional relationship of each body system to another body system(s).

Students generally performed well when providing responses to questions related to processes, conditions and resources required by the body to support healthy functioning.

A lack of knowledge of medical terminology was evident, with most students not achieving full marks on related questions. Some students correctly could break down most of the medical terms into their component parts, but not all could provide the correct meaning to the medical term. Other areas not well answered were medical abbreviations and their meanings, plural and singular forms of medical terms, and identifying misspelt medical terms in written communication and correcting spelling errors.

Where the medical abbreviation questions were part of a case study, the student would benefit from reading the case study and replacing the medical abbreviation with its full meaning. This will identify if the full abbreviation meaning is in context to the case study. Where medical terms were misspelt, especially for those listed as part of a question, then the student did not gain a mark.

Students should read each question carefully, take note of the key task word and plan their response before writing. Where a question asks to 'describe' or 'outline', responding in dot point or list form was not appropriate for full marks.

When students respond to a short-answer or extended-answer question, they should avoid restating the stem of the question in their response and instead provide an answer that demonstrates their depth of knowledge on the topic. Students should also use the marks allocated to the question and the space provided for the answer to guide the amount of detail required in the response.

For questions in table format where some cells in the table are shaded, students should be aware that no response is required in that cell. Some students provided a response in these cells and as such did not receive a mark.

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

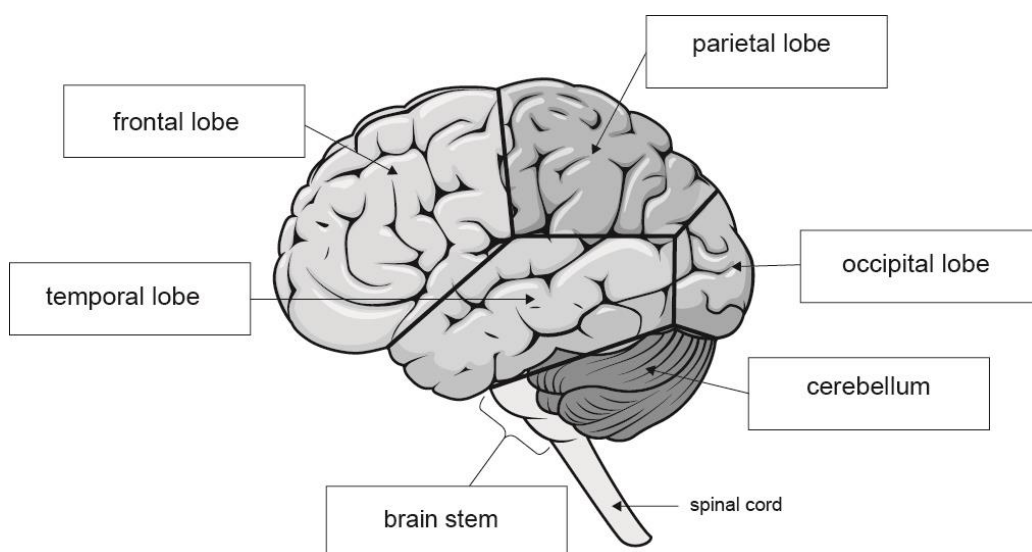
Question	% A	% B	% C	% D	% No Answer	Comments
1	89	3	1	7	0	
2	63	11	18	7	0	
3	19	22	45	14	0	The question asked for the term that describes the location of the kidneys. Most students chose option C, intraperitoneal, but this means within the peritoneal cavity. The kidneys are situated behind and outside the peritoneum, known as retroperitoneal (option D).
4	17	32	22	29	0	The balance of water and electrolytes (mainly sodium) in the body is interdependent, meaning that water moves passively in response to concentrations of sodium.
5	25	35	13	27	0	The conjunctiva is a structure located external to the sclera of the eye, whereas the choroid is a layer located between the retina and the sclera.
6	7	65	13	15	0	
7	6	4	79	12	0	Ventilation refers to the movement of air into and out of the lungs via inspiration and exhalation whereas respiration refers to the movement of air/oxygen from the external environment to the cells of the body.
8	15	40	22	23	0	Coronary arteries carry oxygenated blood to the heart muscle (myocardium), whereas pulmonary veins carry oxygenated blood from the lungs to the left atrium of the heart. Coronary veins carry deoxygenated blood from the heart muscle to the right atrium.
9	7	29	59	5	0	Specialised cells that engulf and ingest foreign particles are phagocytes. B cells are a type of white cell that secretes antibodies, an antigen is a substance that stimulates an immune response and stimulates the production of antibodies, and memory T cells are derived from a normal T cell that has previously encountered an antigen.
10	62	8	4	26	0	

Question	% A	% B	% C	% D	% No Answer	Comments
11	21	5	21	54	0	
12	38	40	12	9	0	The medical term 'amenorrhoea' refers to the condition of being without menstrual flow. Dysmenorrhoea refers to painful menstruation or periods.
13	5	4	67	23	0	The root word for polycythaemia is 'cy', meaning cells. 'Poly-' is the prefix and '-thaemia' is the suffix. There is no combining vowel in this medical term.
14	13	62	20	5	0	
15	6	59	30	5	0	
16	2	33	42	23	0	The medical term 'cephalic' means pertaining to or relating to the head, whereas the medical term 'cerebral' pertains to the brain.
17	31	7	53	9	0	
18	11	84	2	4	0	
19	30	11	47	12	0	The combining form spermat/o means seed or sperm; the combining form orchid/o means testicle.
20	21	23	39	17	0	Tinnitus refers to ringing in the ear.

Section B

Question 1

Marks	0	1	2	3	Average
%	26	26	33	15	1.4



Only a small number of students were able to correctly label all parts of the brain. Most students correctly labelled four or five of the parts. Some students confused the temporal and parietal lobes and the majority of students were unable to identify the brain stem.

Question 2

Marks	0	1	2	Average
%	86	9	5	0.2

Possible responses could have included the following:

- smooth muscles in the walls of lymphatic vessels contract and relax
- the milking action (contraction, relaxing) of skeletal muscles
- pressure changes in the thorax during breathing
- lymphatic vessels having one-way valves to prevent any backwards flow of lymph.

This question was not well answered, with many students confusing lymphatic vessels with blood vessels and discussing blood flow or not providing a response at all. If students discussed contraction of skeletal muscles aiding flow of lymph no marks were awarded. Responses that discussed both contraction and relaxation of skeletal muscles were awarded full marks.

Question 3

Marks	0	1	2	3	Average
%	36	39	21	4	0.9

In order to get full marks students needed to discuss:

- the cerebellum's major part in equilibrium, muscle tone and the coordination of voluntary motor function
- the cerebellum receiving messages from the inner ear, eyes, muscles and joints and sending messages to the muscles to make any postural adjustments required to maintain balance.

Many students found this question challenging and it was not well answered.

Many responses included the cerebellum sending messages to the muscular system to create movement, but did not explain how the cerebellum receives information from the sensory system, the spinal cord or other parts of the brain to regulate motor movement. Also, many of these responses stated that the cerebellum regulates voluntary and involuntary movements, but it only coordinates voluntary motor function.

A few responses also discussed the cerebellum's part in equilibrium and balance but did not explain how it relates to the muscular system.

Question 4

Marks	0	1	2	3	4	Average
%	60	26	9	5	1	0.6

Medical term	Word part				Definition of medical term
	Prefix	Root	Combining vowel	Suffix	
dermatology		dermat		ology	study of the skin and disease of the skin
sigmoidoscopy		sigmoid	o	scopy	inspection of the inside of the sigmoid colon through an endoscope
pericarditis	peri	card		itis	inflammation of the pericardium
polyuria	poly	ur		ia	excessive excretion of urine

The majority of students were able to break down each medical term into its component parts but were not able to provide a precise and accurate meaning.

Inflammation around the heart was a common response for the meaning of pericarditis but inflammation of the pericardium is the precise meaning. Polyuria means excessive excretion of urine but a common response was 'much or lots of urine', which did not gain students a mark.

Students were not awarded a mark if they did not correctly breakdown the medical term into its component parts and accurately provide the meaning of the medical term.

Where areas of the table were shaded there was no component part for that medical term, for example, there is no combining vowel for pericarditis. Some students incorrectly placed component parts in the shaded areas.

Question 5

Marks	0	1	2	3	4	5	6	Average
%	61	16	9	7	3	1	2	0.9

- Filtration – Filtration occurs in the glomerulus of the nephron in the kidney. As blood is pushed through the tiny capillaries, the high pressure forces some things to pass through the capillary walls. The walls act as a sieve or a filter.
- Reabsorption – The filtrate enters the kidney in the proximal tubule and many substances can be removed from the filtrate. The valuable substances are recollected, or reabsorbed, by the body.
- Secretion – The filtrate then passes through the Loop of Henle where it gains and loses water and salt. As it leaves the Loop of Henle, it enters the distal tubule, where secretion occurs.

Many students found this question challenging. Many were able to recognise that nutrients, minerals and water are filtered and then reabsorbed in the body, but where these processes occurred in the body was not always stated or was stated incorrectly. Some students discussed urine formation taking place in the digestive system.

Low-scoring responses described filtration of blood involving nutrients, minerals and water and reabsorption being nutrients required by the body being reabsorbed, but confused secretion with excretion of urine from the body.

Higher-scoring responses described urine formation occurring in the kidney, with filtration taking place in the glomerulus of the Bowman's capsule, reabsorption occurring in the proximal tubule and secretion occurring in the Loop of Henle. These students were also able to relate secretion with the loss or gain of water and sodium.

It was possible for students to gain a mark if they mentioned filtration, reabsorption and secretion occurring in the kidney or nephron of the kidney.

Question 6

Marks	0	1	2	3	4	5	6	Average
%	18	12	19	20	24	5	2	2.4

Function	Relationship
transport	<ul style="list-style-type: none"> oxygen and carbon dioxide to the cells and tissues of the body waste products of metabolism through the kidneys, for example, urea hormones enzymes nutrients, for example, glucose, amino acids, vitamins and minerals to the cells and tissues of the body plasma proteins associated with defence, for example, antibodies and blood-clotting factors blood cells, for example, red blood cells, white blood cells, platelets
maintains body temperature	<ul style="list-style-type: none"> increased blood to skin when the body is hot to aid heat loss decreased blood to skin when the body is cold to reduce heat loss
controls pH	<ul style="list-style-type: none"> the pH of blood is maintained relatively constant by pH buffers in the blood the kidneys help by regulating the absorption and excretion of bicarbonate and hydrogen the respiratory system assists by increasing breathing to remove carbon dioxide
removes toxins from the body	<ul style="list-style-type: none"> the kidneys filter the blood in the body, remove toxins from the blood and expel toxins through urine
regulation of fluid and electrolyte balance	<ul style="list-style-type: none"> excess sodium (salt) and water is removed from the body in urine salt and water are reabsorbed from the kidneys into the blood
protection	<ul style="list-style-type: none"> against blood loss through blood clotting against disease through white blood cells and antibodies

Many students were able to identify functions of blood but often provided the same two functions, for example, 'transport of oxygen' and 'transport of nutrients'. Both of these responses are giving the same function of transport. Low-scoring responses to function required further detail, for example, a response such as 'provides the body with blood' did not outline a function of the blood itself.

Many students struggled to explain the relationship of the function to other systems of the body and included incorrect information about the relationships.

Overall, this question was not well answered.

Question 7a.

Marks	0	1	2	3	Average
%	33	44	18	5	1

Possible responses could have included the following:

- cardiovascular system
 - increased risk of peripheral oedema
 - increased risk of deep vein thrombosis
 - increased workload of the heart to circulate blood due to decrease in venous return
- respiratory system
 - decreased lung expansion
 - oxygen and carbon dioxide exchange is impaired
 - increased risk of chest infections because secretions are not cleared due to decrease in coughing
- muscular system
 - reduced muscle mass, tone and strength
 - muscles begin to feel stiff and sore on movement
 - muscles weaken and atrophy

This question was not well answered, with many students discussing the effect of immobility on Sarah's recovery from eventual surgery or not explaining thoroughly the effect of immobility on the body system chosen. For example, many students who selected the muscular system mentioned weakness, reduced muscle mass or muscle atrophy, but did not explain how immobility related to these effects.

Question 7b.

Marks	0	1	2	3	Average
%	70	20	7	3	0.5

In order to get full marks students needed to describe the following:

- ligaments
 - connect bones to other bones
 - are strong, fibrous bands that vary in location, size and strength
 - control the movement and stability of joints
- tendons
 - connect muscle to bones
 - soft, connective tissue found throughout the body

- transfers force between muscle and bone to create movement

This question was not well answered. Many students confused tendons with ligaments, stating that tendons connect bone to bone or bone to cartilage, muscle to muscle and ligaments connect muscle to bone or muscle to muscle. There was little response provided on the structure of both tendons and ligaments and their function.

Question 8

Marks	0	1	2	3	4	5	6	7	Average
%	2	9	26	25	21	15	3	0	3.1

Word/Abbreviation	Definition/Full medical term
ED	emergency department
5/7	5 days
PMHx	past medical history or patient medical history
prostatectomy	surgical removal of the prostate
hypothyroidism	underactive thyroid gland
dermatitis	inflammation of the skin
TPR	temperature, pulse, respiration or temperature, pulse, respiratory rate
BP	blood pressure
Dr	doctor
colonoscopy	inspection of the inside of the colon through a viewing instrument (endoscope)
Rx	treatment or prescription
D/C	discharge
OPD	outpatient department
6/52	6 weeks

The variation in responses indicated that students did not have a thorough grasp of medical terminology and abbreviations. It would be to the student's advantage to refer to the case study for the context in which the abbreviation is stated. Students should read the case study, replacing the abbreviation with the full meaning, to see if it makes sense.

High-scoring responses provided precision and adequate detail in their responses. For example, prostatectomy as the 'surgical removal of the prostate', whereas a low-scoring response stated, 'removal of the prostate'.

Students generally did not give an answer for hypothyroidism, D/C and OPD or the meaning given was incorrect.

Students should be mindful when giving answers to medical abbreviations for time (e.g. 5/7 or 6/52). Students who responded '6th week of 52' did not receive a mark, where the correct answer was simply '6 weeks'. A common response to 5/7 was 5 out of 7 days, where it is simply '5 days'.

Question 9

Marks	0	1	2	3	4	5	Average
%	17	21	21	19	15	6	2.2

Medical term	Singular form	Plural form
bacterium		bacteria
ova	ovum	
sinus		sinuses
vertebrae	vertebra	
bronchi	bronchus	

The plural medical terms bacteria and sinuses and the single term vertebra were the most common correctly stated. Lower-scoring responses stated that ovary was the singular form of ova and bronchioles was the singular form of bronchi.

No response was required in shaded areas of the table, for example, for bacterium the student needed to provide the plural form as the singular form cell was shaded.

Question 10

Marks	0	1	2	Average
%	86	11	3	0.2

Upper respiratory tract	Lower respiratory tract
<ul style="list-style-type: none"> nose/nostril (optional) nasal cavity pharynx larynx mouth/oral cavity (optional) 	<ul style="list-style-type: none"> trachea bronchi bronchioles alveoli lungs

This question was very poorly answered, demonstrating a lack of knowledge of the basic structure of the respiratory system. A large number of responses did not mention lungs as part of the lower respiratory tract.

Many responses included:

- the trachea in the upper respiratory tract, but the trachea is part of the lower respiratory tract
- the diaphragm in the lower respiratory tract, but the diaphragm is an accessory muscle
- veins and arteries in the lower respiratory tract, but these are part of the cardiovascular system
- the oesophagus as part of the lower respiratory tract, which is an organ in the digestive system.

Question 11

Marks	0	1	2	3	4	5	6	Average
%	6	8	18	17	20	20	10	3.4

Explanation	Medical term
excessive concentration of potassium in the blood	hyperkalaemia
the cavity contains the heart and the lungs	thoracic
the condition that results from lack of iron in erythrocytes	anaemia
the rhythmic contraction and relaxation of the smooth muscle that lines the walls of the digestive organs	peristalsis
low production of urine	oliguria
how the heart is positioned in relation to the sternum	posterior

This question was generally well answered. Where a student wrote the medical term from the list provided, but misspelled the medical term, no mark was provided.

Common errors included:

- excessive concentration of potassium in the blood is called hypernatraemia (excessive concentration of sodium in the blood)
- low production of urine – enuresis (involuntary urination)
- the rhythmic contraction and relaxation of the smooth muscle that lines the walls of the digestive organs – segmentation (contraction of smooth muscle that divides the part into segments, mainly occurs in the small intestine, but also occurs in the large intestine) how the heart is positioned in relation to the sternum – distal (situated away from the point of origin or from the centre of the body)

Section C**Case study 1****Question 1**

Marks	0	1	2	3	4	Average
%	35	29	22	9	4	1.2

Abbreviation	Full medical term
2/12	two months
L) CVA	left cerebral vascular accident
HT	hypertension
BD	twice daily

This question was not answered well. There was a lack of knowledge on the full meaning of common medical abbreviations.

Students would be best to refer to the case study to understand the context in which the abbreviation occurs before noting their response.

No marks were awarded where a student noted 2/12 as 2 out of 12 months. Left cerebrovascular accident or left cerebral vascular accident gained marks for L) CVA, but any variation to this did not get marks. The full medical term for BD, twice daily, was not well known.

Question 2

Marks	0	1	2	3	Average
%	94	5	1	0	0.1

Medical term	Word part			Definition of medical term
	Prefix	Root	Suffix	
hemiplegia	hemi-		-plegia	paralysis of one side of the body
contralateral	contra-		-lateral	pertaining to the other side
dysphasia	dys-	phas	-ia	abnormal speech condition/condition of abnormal speech

This question was not well answered by the majority of students. Students did not provide correct responses to the definition of the words and/or incorrectly broke down the medical terms into their component parts, with some students placing a response in the shaded areas.

The definition of hemiplegia was mostly inaccurate, with many stating 'paralysis of half of the body'. However, this does not indicate which half of the body (top, bottom, left, right, etc.), so only responses stating 'paralysis of one side of the body' were awarded a mark.

Similarly, for the medical term dysphasia, many students incorrectly stated its meaning as 'difficulty speaking'. The more accurate meaning is 'abnormal condition of speech', 'condition of abnormal speech' or 'disorder of speech'. Some students confused dysphasia with dysphagia, which means difficulty in swallowing.

Students needed to correctly break down the medical term into its component parts and provide the meaning to gain one mark. If either or both sections was incorrect, then no marks were awarded.

Question 3

Marks	0	1	2	3	4	5	6	Average
%	9	20	29	21	14	6	2	2.4

Possible responses could have included the following:

- lowers blood pressure
- lessens the risk of developing diabetes
- maintains a healthy body weight
- reduces the risk of heart disease and stroke
- helps to strengthen muscles – improves muscles' ability to use oxygen from circulating blood without the need for the heart to pump faster

- increases circulation, which enhances blood and oxygen flow and removal of wastes and toxins
- increases lymph flow, thus increasing the removal of toxins to the blood circulation
- improves muscular endurance and strength
- improves body posture, flexibility and range of motion
- helps to maintain balance and improve coordination
- lowers stress – reduces the stress hormones
- reduces inflammation by reducing the inflammatory markers in the body
- maintains healthy hair, skin and nails
- assists with temperature regulation throughout the day and night.

High-scoring responses were able to provide at least one response for each of the cardiovascular, muscular and integumentary systems and provide an explanation of how the response to exercise supports the body's healthy functioning.

Low-scoring responses included improve blood flow, gain muscle mass or strength and temperature regulation, but did not provide an explanation of how it supports the body's healthy functioning.

Question 4

Marks	0	1	2	3	4	5	6	Average
%	3	1	4	10	11	21	51	4.9

Lifestyle factor	Intervention	Resource
smoking	<ul style="list-style-type: none"> • reduce/quit smoking • hypnotherapy • acupuncture • GP-prescribed medication • nicotine replacement products, e.g. patch, gum, lozenges 	<ul style="list-style-type: none"> • Quitline • Quit website • Quit smoking kit • support services, e.g. QuitCoach • GP consultation
overweight	<ul style="list-style-type: none"> • healthy, well-balanced diet • eliminate fast food • add variety to the diet • choose healthy snacks • weight loss diet • increase exercise • exercise plan compliance 	<ul style="list-style-type: none"> • refer to dietician • Australian Dietary Guidelines • Healthy Weight Guide • GP consultation
stress	<ul style="list-style-type: none"> • reduce work stress • reduce work hours • exercise regularly • relaxation • mindfulness • reduce social isolation 	<ul style="list-style-type: none"> • online services • telephone support services • increase social interaction • Beyond Blue • GP consultation • psychologists/counsellors

Most students were able to complete the table and gain some marks. Although simple suggestions were generally provided to both intervention and resource they were still valid, demonstrating a good grasp of healthy lifestyles and reflecting on the case study.

Low-scoring responses provided an intervention instead of a resource – e.g. relaxation techniques, read a book, take homemade food to work – and therefore were not awarded full marks.

Case study 2

Question 5

Marks	0	1	2	3	Average
%	46	26	14	14	1

Possible responses could have included the following:

First line of defence (innate immunity):

- Skin acts as a barrier, preventing the invasion of microbes into the body.
- Mucous membranes produce mucous that traps microbes.
- Bodily fluids – e.g. saliva, sebum, gastric juice – either wash away or kill microbes.

Second line of defence (non-specific resistance):

- White blood cells activated.
- Macrophages (phagocytic cell) destroy microbes by ingesting them.

Third line of defence (specific resistance):

- B cells and T cells activated.
- B cells make protein antibodies that attach to the microbe, alert other cells that it is foreign and destroy them.
- T cells destroy infected cells.

This question required students to outline the body's three lines of defence in minimising the risk of infection. Responses demonstrated a general lack of knowledge of the body's defence mechanisms.

The majority of students were able to state that the skin was the first line of defence, but higher-scoring responses also discussed bodily fluids, e.g. saliva in washing away or killing microbes.

The second and third lines of defence were generally not well described, with a large number of students providing incorrect information.

Question 6

Marks	0	1	2	3	Average
%	5	20	31	45	2.2

- immunisation/vaccination
- hand hygiene – hand washing and/or hand sanitiser
- frequently clean common surfaces, e.g. phone, photocopier
- avoid shaking Nasira's hand or coming into close contact with her
- ask Nasira to use throw away tissues used to blow her nose and frequently wash her hands
- ventilation
- not sharing food or drinks

This question was generally answered well. Students should ensure that they read the task word of a question (describe) and ensure that they are clear about what the question is asking before formulating a response.

Marks were not awarded if students referred to how Nasira could get better as this did not answer the question. Some students discussed healthy diet and sleep as ways of avoiding exposure to Nasira's symptoms. These are valid ways of boosting the immune system, but do not allow the five people to avoid exposure to Nasira's symptoms, therefore no marks were awarded.

High-scoring responses thoroughly explained several ways the other five people could avoid their risk of exposure to Nasira and justified this accordingly.

Low-scoring responses listed ways to reduce exposure to Nasira, in dot-point form, but did not describe how each minimised the risk of exposure.

Question 7

Marks	0	1	Average
%	97	3	0.1

- semicircular canals
- vestibule
- vestibular nerve

This question was not well answered. The lack of response or incorrect responses demonstrated students' lack of knowledge of the structure of the ear.

Question 8

Marks	0	1	2	3	4	Average
%	11	13	29	38	9	2.2

Incorrectly spelt medical word	Correctly spelt medical word
carsenoma	carcinoma
byopsee	biopsy
pharinks	pharynx
truckia	trachea

This question was not well answered, which identified a shortfall in students' ability to recognise and rectify spelling errors in common medical terms. The most common incorrectly spelt medical term was 'carcinoma'.