



2003

VCE VET Laboratory Skills GA 2: Written examination

GENERAL COMMENTS

Students performed reasonably well on materials covered in Section 1 including quality assurance and maintaining laboratory equipment. In Elective 1, students understood basic tests carried out in a working laboratory and recognised and described the use of routine laboratory equipment.

Students who attempted Elective 2 showed a serious lack of understanding of course content and practical applications other than OHS issues. Students performed best in Elective 3, indicating sound general knowledge of the preparation of solutions and maintenance of laboratory records.

SPECIFIC INFORMATION

Section 1 – Core

(Average mark 8.54/Available marks 10)

Question	Answer
1	C
2	B
3	C
4	A
5	C
6	D
7	C
8	D
9	A
10	C

Question 11

a–b

Marks	0	1	2	3	4	5	6	Average
%	0	27	18	9	9	0	37	3.45

a

Error in calculation

bi

Establish baseline of machine

bii

Use sample or reference standard of known value. Check result.

biii

Repeatability. Reproducibility. Obtain same/similar (or within agreed range) results each time with same sample or reference standard.

Question 12

a–c

Marks	0	1	2	3	4	Average
%	0	0	0	55	45	3.45

a

Jean has to work hard all the time while others have less to do.

bi

Make her concerns known to her supervisor by discussing her issues.

bii

Don't blame other workers. Continue to do the job while seeking resolution of the issues.

c

Any ONE of:

Share the work in down times

or

Allow others to do her specialised tasks to share the load

or

Reduce her load in QA to allow her to support the team in preparation of solutions and purchasing.

Question 13

i-ii

Marks	0	1	2	3	Average
%	0	27	27	46	2.18

i

Level

ii

Clean

iii

Any ONE of:

Zero balance

or

Check for frayed electrical lead

or

Check calibration status.

Question 14

a-b

Marks	0	1	2	Average
%	46	18	36	0.90

a

Any ONE of:

Probe dirty

or

Damaged

or

Dry.

b

Any ONE of:

Clean the probe

or

Replace the probe

or

Soak the probe.

Question 15

a-b

Marks	0	1	2	3	4	5	Average
%	0	0	9	27	55	9	3.63

ai

Prevent work contamination

aii

Prevent sample contamination

bi

Detergent, brush and rinse

bii

Clean stage and lens with lens tissue

biii

Damp cloth, detergent and alcohol

Section 2

Elective 1

(Average mark 6.1/Available marks 10)

Question	Answer
1	A
2	C
3	C
4	C
5	A
6	B

7	B
8	B
9	A
10	C

Question 11

a–b

Marks	0	1	2	3	4	5	Average
%	0	0	0	80	20	0	3.20

ai

Name of substance/sample

aii

Date collected

aiii

Any ONE of:

Test to be performed

or

Description of sample

or

Who collected sample

or

Location of sample/collection point.

b

Cone and quarter: form into a cone. Flatten the top. Divide into quarters. Discard opposite quarters. Combine remaining quarters. Repeat.

Question 12

Marks	0	1	2	3	4	Average
%	0	0	0	0	100	4.00

- measuring pH
- filling pipette
- grinding material into a powder
- finding the mass or weighing materials.

Question 13

Marks	0	1	2	3	Average
%	30	0	40	30	1.70

Order	Steps
2	Place weighing boat on the balance pan
5	Record the weight of the chemical
6	Remove weighing boat with added chemical
3	Press the zero button to bring machine out of standby mode and tare the balance
1	Open the sliding balance door
7	Press zero button to place balance back into standby mode
4	Add the chemical to the weighing boat

Question 14

a–b

Marks	0	1	2	3	4	Average
%	0	50	50	0	0	1.50

a

Degree of runniness or rate of flow of a material

b

A

c

A higher room temperature reduced the viscosity

d

Make the material homogenous. Also, the sheer forces of shaking vigorously affect thixotropic materials. This method produces repeatable results for all.

Question 15

a–b

Marks	0	1	2	3	4	Average
%	0	0	10	30	60	3.50

ai

12.6cm

aii

3200mL

bi

% passing = $380/400 \times 100 = 95\%$

bii

No

**Elective 2 – PMLTEST301 Perform biological laboratory procedures
(Average mark 6.8/Available marks 10)**

Question	Answer
1	B
2	B
3	B
4	A
5	C
6	B
7	B
8	C
9	C
10	A

Question 11

a–b

Marks	0	1	2	3	4	5	6	Average
%	100	0	0	0	0	0	0	0.00

ai

Tissue block (specimen) holder

aii

Knife edge

aiii

Drive wheel

bi

Holds wax block containing embedded specimen

bii

Cuts the tissue block (specimen) into thin sections

biii

Moves the tissue block holder up and down over the knife edge to cut the sections

Students showed a lack of knowledge of the identification and operation of equipment fundamental to the area.

Question 12

a–b

Marks	0	1	2	3	Average
%	40	40	20	0	0.80

a

C

bi

30 mm to 50 mm long

or

Tail well rounded

bii

Edges of film parallel to edges of slide

or

No streaks or thick patches.

Question 13

i–ii

Marks	0	1	2	Average
%	20	60	20	1.00

i

Wear gloves at all times

ii

Dispose of samples or contaminated equipment according to the correct protocol

Question 14

i–ii

Marks	0	1	2	Average
%	40	60	0	0.60

i

Erythrocytes – red blood cells – carry oxygen and wastes

ii

Leucocytes – white blood cells – fight infection

Question 15

a–d

Marks	0	1	2	3	4	5	6	7	Average
%	20	20	0	0	20	0	40	0	3.40

a

Order	Steps
2	Sterilise your loop in the Bunsen flame
4	Carefully mix the bacteria with the water
1	Place a small drop of water onto a labelled slide
3	Touch the loop onto an isolated colony
6	Fix the smear by passing three times through the Bunsen flame
5	Air-dry the smear

bi

Gram stain

bii

Produces different colours: purple Gram +ve; red Gram -ve

c

Oil immersion

d

Transfer of bacterial material from culture media to microscope slide without infecting self or others, and without contaminating the workplace.

Elective 3 – PMLTEST303 Prepare working solutions**(Average mark 7.71/Available marks10)**

Question	Answer
1	C
2	B
3	B
4	C
5	C
6	A
7	A
8	A
9	A
10	B

Question 11

Marks	0	1	2	3	4	Average
%	0	14	14	0	72	3.28

i

Starts work without putting on a lab coat thus contamination of clothes or skin.

Error must match hazard in each or no marks given.

ii

Turns on hotplate before cleaning spills and capping bottles thus possibility of ignition of flammables. Error must match hazard in each or no marks given.

Question 12

a–c

Marks	0	1	2	3	4	Average
%	0	14	14	29	43	3.00

a

Alkaline

bi

Bitter taste

bii

Produces OH ions in aqueous solution

c

No

d–e

Marks	0	1	2	Average
%	14	86	0	0.85

d

Chemical

e

Dissolves in another substance (typically water)

f–g

Marks	0	1	2	3	Average
%	0	0	0	100	3.00

fi

Remove lab coat and wash before reuse

fii

Drench skin thoroughly with water. Swab with vinegar, or polyethylene glycol 400

g

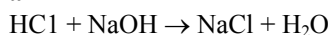
Neutralises alkaline

Question 13

a–c

Marks	0	1	2	3	4	5	6	7	Average
%	0	0	0	0	0	43	43	14	5.71

a



Any FOUR of the following showing, by use of a labelled diagram, the correct set up of a titration and knowledge of the correct equipment names.

b

- retort (burette) stand
- burette
- clamp
- conical flask
- white tile
- HCl
- NaOH
- indicator.

c

The end point is the first permanent colour change in the indicator, at which the volume of titrant (solution added from the burette) is measured.

© VCAA 2003

Published by the Victorian Curriculum and Assessment Authority
41 St Andrews Place, East Melbourne 3002

Photocopying: This publication can only be photocopied for the use of students and teachers in Victorian Schools.

