



2013 VCE VET Engineering Studies GA2: Examination

GENERAL COMMENTS

- **Section A:** There was a reduction in the average number of correct responses to this section compared with previous years. Students had difficulty understanding circuit theory.
- **Section B:** Sketching and drawing interpretation continued to improve this year. The third-angle projection and isometric drawings were drawn well by the majority of students.
- **Section C:** There was an improvement this year; students had a better understanding of hand tools and basic operational planning.
- **Section D:** This section was answered well, with most students showing a good understanding of safety in the workplace.
- **Section E:** There was an improvement in the number of students attempting all questions in this section. Students had the most difficulty with questions related to setting up and work-holding.

The general approaches below were followed in allocating marks in the short-answer sections of the examination.

- Responses needed to be consistent with the level of knowledge expected of a trainee in the engineering industry at a Certificate II standard.
- In general, it should be pointed out to students that they are more likely to be awarded marks for short, concise answers that are appropriate to the question, rather than providing a range of different responses.
- If a response did not address the subject of a question it was not awarded marks.

SPECIFIC INFORMATION

This report provides sample answers, or an indication of what the 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 errors resulting in a total less than 100 per cent.

Section A – VBN 771 Apply electrotechnology principles in an engineering work environment

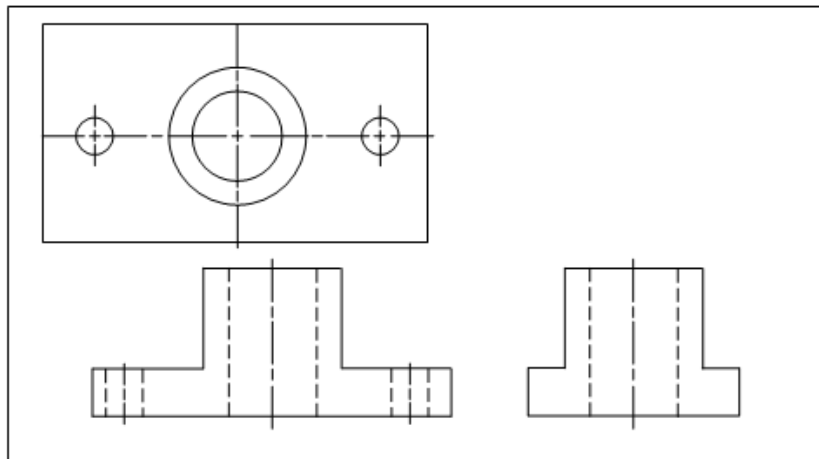
Question	% A	% B	% C	% D	Comments
1	3	2	85	9	
2	15	12	66	7	
3	27	61	6	6	
4	20	50	12	18	
5	23	26	27	23	With the switch closed the total resistance of the circuit decreases; therefore, the current will increase.
6	86	8	3	3	
7	26	21	26	28	Switch 1 and R2 were in parallel; therefore, the voltage across R2 would be the same as the voltage across S1 with the switch open.
8	64	22	10	4	When actuated, the switch turns the lamp off and on.
9	7	37	21	35	
10	27	9	37	27	
11	12	64	20	5	
12	9	10	7	74	
13	5	9	50	36	
14	46	8	16	30	
15	58	15	17	10	



Section B – VBN 773 Produce basic engineering sketches and drawings

Question 1

Marks	0	1	2	3	4	Average
%	2	4	9	28	58	3.4



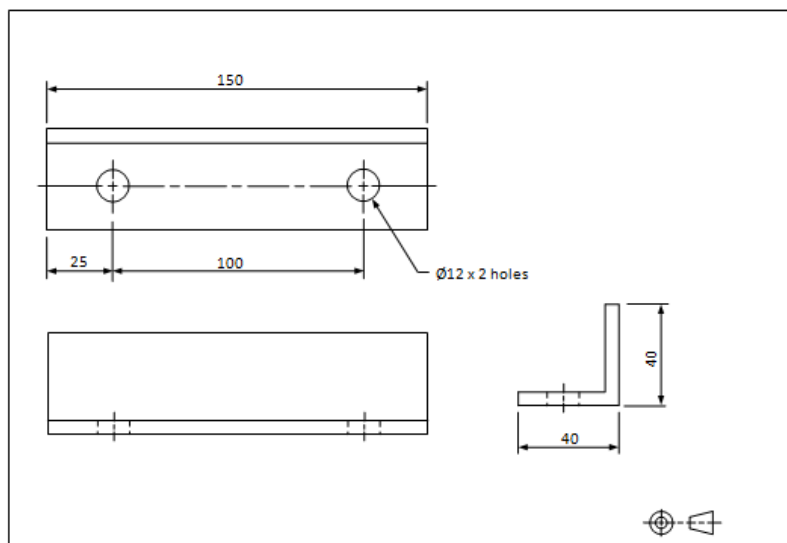
Marks were allocated for

- correct outline
- hidden lines
- centre lines.

Overall, sketching showing the three views was good; however, basic placement of correct centre lines and basic hidden lines are areas that could be improved.

Question 2

Marks	0	1	2	3	4	Average
%	10	3	8	30	48	3.1



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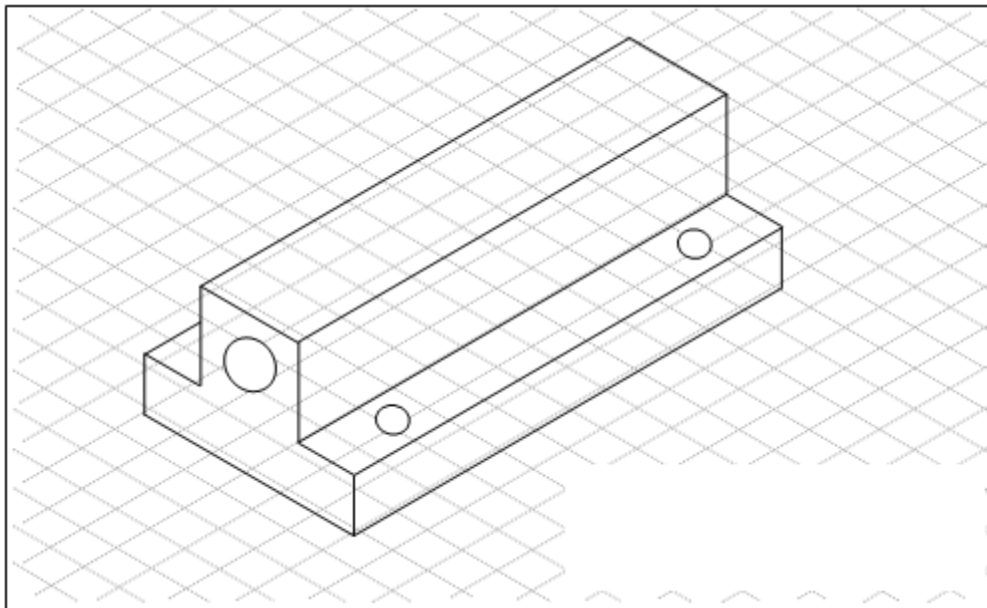


Marks were allocated for the following being dimensioned.

- length
- 40×40
- holes
- hole positions.

Question 3

Marks	0	1	2	3	Average
%	10	3	6	81	2.6



Marks were allocated for

- correct shape
- correct isometric.

Question 4

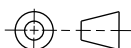
Marks	0	1	2	3	4	Average
%	15	22	32	24	7	1.9



thread



knurl



third-angle projection



R15

radius 15

Section C – VBN 776 Use basic engineering concepts to plan the manufacture of engineering components

Questions 1a.–1d.

Marks	0	1	2	3	4	5	6	Average
%	1	2	9	16	26	30	16	4.2

1a.

Datum edges top and left-hand side

1b.

- marking medium/stain/pen
- witness marking

1c.

Four of

- scribe
- centre punch
- rule
- hammer
- vernier height gauge
- try square
- protractor.

1d.

Datum edge

Questions 1e. and 1f.

Marks	0	1	2	Average
%	19	45	36	1.2

1e.

Any one of

- hacksaw
- bandsaw
- jigsaw
- guillotine
- milling machine.

1f.

D – flat file

Question 2a.

Marks	0	1	Average
%	1	99	1

Brass

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Questions 2b. and 2c.

Marks	0	1	2	3	4	5	6	Average
%	11	11	6	9	9	19	35	3.9

Question 2b.

Step	Operation
1	Mill 50 mm-wide slot
2	Mill 20 mm-wide slot
3	Drill Ø 8 holes
4	Countersink holes

Question 2c.

Vernier calipers

Section D – VBN 777 Handle engineering materials

Question 1

Marks	0	1	Average
%	31	69	0.7

They have steel caps.

Question 2

Marks	0	1	Average
%	5	95	1

Personal protective equipment

Question 3

Marks	0	1	2	Average
%	1	56	43	1.4

Any two of

- wear gloves
- wear a leather apron
- use a mechanical lifting aid
- remove sharp edges.

Question 4

Marks	0	1	Average
%	22	78	0.8

Safe working load of 250 kg

Question 5

Marks	0	1	2	Average
%	4	37	59	1.6

Students needed to give two safe ways of carrying and/or warning and watching out for other people.

For example, 'carry as low to the floor as possible and cover/protect both ends with a rag. Warn other workers in the area'.

Question 6

Marks	0	1	Average
%	23	77	0.8

- no welding
- no grinding

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Other similar answers were also accepted.

Question 7

Marks	0	1	2	3	Average
%	0	8	38	54	2.5

- forklift: Yes
- electric pallet truck: No
- hoist: No

Question 8

Marks	0	1	Average
%	46	54	0.6

Either of

- two-person lift
- mechanical aid.

Question 9

Marks	0	1	Average
%	25	75	0.8

The lenses are made of toughened glass.

Other similar answers were also accepted.

Question 10

Marks	0	1	Average
%	33	67	0.7

MSDS: Material Safety Data Sheet

Question 11

Marks	0	1	Average
%	18	82	0.8

Any one of

- frayed
- cut
- worn
- incorrect rating.

Section E – VBN 778 Produce basic engineering components and products using fabrication and machining

Question 1a.

Marks	0	1	Average
%	14	86	0.9

C

Questions 1b.–1f.

Marks	0	1	2	3	4	5	Average
%	27	23	23	14	8	5	1.7

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1b.

Any length between 252 mm and 260 mm

1c.

Parallel strip

1d.

- end mill
- slot drill
- side and face cutter

1e.

measure both ends

1f.

The vice jaws are not parallel to the milling machine table.

Questions 1g.–1j.

Marks	0	1	2	3	4	Average
%	5	15	30	30	20	2.5

1g.

Vernier height gauge

1h.

It is more accurate than a rule and square.

1i.

A

1j.

A: 8.5

Question 1k.

Marks	0	1	Average
%	75	25	0.3

Reaming is more accurate than drilling.

Questions 2a.–2b.

Marks	0	1	2	3	Average
%	2	23	47	29	2

2ai.

A

2aii.

Fixed jaw of vice

2b.

Protractor

Questions 2c.–d.

Marks	0	1	2	3	Average
%	6	20	36	38	2.1

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2ci.

Metric thread, 10 mm major diameter

2cii.

Pitch of 1.5 mm

2d.

8.5 mm

Questions 2e.–2h.

Marks	0	1	2	3	4	5	6	Average
%	2	8	11	16	19	26	17	3.9

2e.

The rest is too far from the wheel. Items being ground can be pulled into the gap.

2f.



A

A plug tap or bottoming tap

2g.

To break the chip or to prevent the tap from breaking

2h.

Check the tap with a square after starting to tap.

Questions 2i–2j.

Marks	0	1	2	3	4	5	Average
%	13	40	37	7	3	0	1.5

2i.

To hold the round bar horizontally (or accurately)

2ji.

Socket head cap screw

Most students were not aware of the correct name.

2jii.

Allen key

2jiii.

Dowel pin or roll pin

Most students did not know the correct names or uses.

2jiv.

To accurately position the two parts together

Most students did not know the purpose of using Fastener B.

Questions 3a.–3b.

Marks	0	1	2	Average
%	46	36	18	0.7

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3a.

Setting the tool to the centre in the tailstock or by using a rule between the work and the tool.

3b.

The tool will rub or will result in a poor finish.

Questions 3c.–3d.

Marks	0	1	2	3	4	5	6	Average
%	11	17	21	17	17	12	5	2.7

3ci.

Micrometer

3cii.

Any of

- incorrect pressure when using micrometer
- damaged micrometer
- dirt between micrometer and work
- micrometer not zeroed.

3ciii.

22.68 mm

3civ.

1.34 mm

3cv.

Cross slide

3d.

Any of

- turn tool to 45 degrees and plunge cut
- use 45 degree chamfering tool
- set top slide to 45 degrees.

Questions 3e.–3g.

Marks	0	1	2	3	4	Average
%	40	37	20	3	1	0.9

3e.

Mark a line through the centre of the material when marking out the hole position, and use this line to set vertically using a square before drilling.

Many students did not understand that the cap is too small to be held securely in a V-block.

3f.

Grub screw

3g.

It has no head, so will not protrude out of the hole.