Retrospective

2018 Queensland Core Skills Test

Short Response (SR) (Part 2 of 5)

Queensland Government
Queensland Curriculum & Assessment Authority
For all Queensland schools

Short Response (SR)

This year's SR subtest comprised 14 items across nine units. As students worked through each unit, they interacted with stimulus material, which was chosen to be challenging and engaging. Test developers paid careful attention to framing each item in a way that made it accessible to most students. The SR testpaper comprised units with stimulus material selected from fields such as mathematics, science, geography, IT, history, the social sciences and literature.

This year's paper was varied in its content, covering a broad range of CCEs. The different tasks included explaining the idea of nominative determinism, applying a method for subdividing land, determining the validity of credit card numbers, understanding a particular form of poetry, finding how the best view is established in theatres, commenting on a motivational poster, investigating recycling of smart phones, interacting with passages from a novel and determining rainfall using a rain gauge.

Model responses and commentaries on student performance

What follows is an item-by-item report that includes model responses and marking schemes, tables and graphs of the distributions of grades, and commentaries that discuss the tasks. At times, references to specific student responses are included to exemplify observations. As much as possible, model responses are actual student responses. Model responses are those that demonstrate a high level of performance and would have been awarded the highest grade.

For some items, especially the more open-ended ones, responses were extremely varied. For these responses it is not possible to provide examples of the many ways students responded. The detailed, item-specific marking schemes indicate the scope of acceptable responses for different grades. Even for the more closed items, marking schemes demonstrate that different ways of perceiving 'the solution' were able to gain credit.

Marking schemes

The marking schemes used during the marking operation and included in this section of the *Retrospective* are not designed to be read in isolation. They are only one element of the marking prescription. During the marking operation, markers undergo rigorous training in how to apply the marking schemes to student responses of one marking unit. The training involves careful consideration and application of the material presented by immersers.

Each marking scheme provides descriptors for up to five creditable grades, as well as the non-contributory grades N (where the response is unintelligible or does not satisfy the requirements of any other grade) and O (where no response has been made at any time).

For organisational purposes during the marking operation, the testpaper units were grouped into five marking units. In 2018, Marking Unit 1 contained testpaper units One and Six, Marking Unit 2 contained testpaper units Two, Three and Five, Marking Unit 4 contained testpaper unit Four, Marking Unit 7 contained testpaper units Seven and Nine and Marking Unit 8 contained testpaper unit Eight.

All SR items are double-marked. This means that a student's response booklet is marked by at least 10 different, independent markers. Referee marking also occurs when necessary.

SR 2018 summary

Unit	Item	Basket	Common Curriculum Elements by unit
One *Names*	1	α	4 *Interpreting the meaning of words …* 26 *Explaining to others* 38 *Generalising from information* 43 *Analysing*
Two *Quarters*	2	ϕ	7 *Translating from one form to another* 37 *Applying a progression of steps to achieve the required answer* 44 *Synthesising* 53 *Observing systematically*
Three *Luhn*	3	θ	16 *Calculating with or without calculators* 34 *Interpolating* 37 *Applying a progression of steps to achieve the required answer* 48 *Justifying*
Four *Sestina*	4	β	7 *Translating from one form to another* 26 *Explaining to others* 28 *Empathising* 34 *Interpolating* 35 *Extrapolating* 46 *Creating/composing/devising* 49 *Perceiving patterns*
	5	α	
Five *Theatre*	6	α	6 *Interpreting the meaning of … diagrams …* 16 *Calculating with or without calculators* 18 *Approximating a numerical value* 32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true* 50 *Visualising* 51 *Identifying shapes in two and three dimensions* 60 *Sketching/drawing*
	7	β	
Six *Cats*	8	π	5 *Interpreting the meaning of pictures …* 27 *Expounding a viewpoint* 31 *Interrelating ideas/themes/issues* 42 *Criticising* 48 *Justifying*
Seven *Phones*	9	ϕ	6 *Interpreting the meaning of tables …* 16 *Calculating with or without calculators* 22 *Structuring … a mathematical argument* 29 *Comparing* 43 *Analysing* 48 *Justifying*
	10	θ	
Eight *Magicians*	11	θ	4 *Interpreting the meaning of words …* 10 *Using vocabulary appropriate to a context* 26 *Explaining to others* 28 *Empathising* 29 *Comparing, contrasting* 31 *Interrelating ideas/themes/issues* 33 *Inferring* 41 *Hypothesising* 44 *Synthesising* 48 *Justifying*
	12	θ	
	13	β	
Nine *Rain gauge*	14	ϕ	19 *Substituting in formulae* 20 *Setting out/presenting/arranging/displaying* 44 *Synthesising* 51 *Identifying shapes in two and three dimensions*

Note: CCEs specific to an item are listed on the item's marking scheme.
The baskets into which CCEs are grouped are shown in Appendix 3.

Unit One

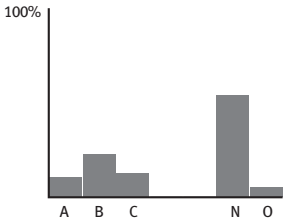
The item in this unit is based on the idea that a person's name could determine their life choices.

The following table shows the percentage of responses awarded the various grades for the item in this unit.

	A	B	C	D	E	N	O
Item 1	10.6	22.7	12.6			53.9	5.1
A shaded box indicates that the grade was not available for the item.							

Item 1

Commentary



Item 1 is a two-star item that tested achievement in CCEs 4 *Interpreting the meaning of words*, 38 *Generalising from information*, 26 *Explaining to others*, and 43 *Analysing*.

The introduction to Item 1 consisted of three separate statements, each of which included the name of someone and something they did. There were two parts to this item. Part I required students to engage with the idea of nominative determinism, also known as 'the compulsion of the name'. Students were required to explain the idea of nominative determinism and the cue instructed them to refer to one of the statements to support their response. In part II a sentence was given and students were required to explain how the sentence was an example of nominative *contra*-determinism. Students were told '*contra*' means against.

An A-grade response needed, for part I, to make clear that the idea of nominative determinism is that a person's name causes what they do in life and explain how one of the statements was an instance of nominative determinism. For part II, a relevant meaning of 'slack' had to be stated and appropriate parts of the sentence had to be used to describe how the Inspector's actions went against what would be expected considering his name.

Stronger responses for part I recognised the causality between name and career or achievement and unpacked one of the statements effectively to show this understanding. Weaker responses only established an association or link between the career or achievement and the name.

For part II, stronger responses identified the expectation that Inspector Slack would be lazy; however, in being very energetic, he proved his name wrong, therefore going against the compulsion of his name. Weaker responses only indicated that the inspector's name and what he did were at odds with each other.

Students should remember to read all parts of the stimulus carefully. The extra information that nominative determinism had been called 'the compulsion of the name' was often ignored, with 'nominative' misinterpreted as 'nominate' and 'determinism' as 'determination' which led to attempts to argue that the person in the statement was nominated for their position or was determined to be successful.

Model response

I.

The idea of nominative determinism is that a person is compelled to do something based on their name. For example, Ms Blossom's name involves flowers and therefore her name is related to horticulture, she was compelled to become the principal of a horticultural college due to the nature of her name.

II.

The inspector's name is Slack which is a word used to mean lazy. If it was nominative determinism we would be assuming he would be lazy but he is not, he is energetic which shows nominative contra-determinism.

UNIT ONE ITEM 1

Marking Scheme

PERFORMANCE DOMAIN	4 Interpreting the meaning of words … 43 Analysing 38 Generalising from information 26 Explaining to others

A	B	C	N
The response **for part I** • makes clear that the idea of nominative determinism is that a person's name causes what they do in life • explains how one of the statements is an instance of nominative determinism **for part II** • states a relevant meaning of 'slack' • uses appropriate parts of the sentence to describe how the Inspector's actions go against what would be expected, considering his name.	**The response** **for part I** • proposes that what a person does is associated with their name or vice versa • explains how one of the statements shows this association **for part II** • uses appropriate parts of the sentence to indicate that what the Inspector does is opposite to his name. **OR** **The response** **for part I** • makes clear that the idea of nominative determinism is that a person's name causes what they do in life • explains how one of the statements is an instance of nominative determinism. **OR** **The response** **for part II** • states a relevant meaning of slack • uses appropriate parts of the sentence to describe how the Inspector's actions go against what would be expected, considering his name.	**The response** **for part I** • proposes that what a person does is associated with their name or vice versa. **OR** **The response** **for part I** • explains that what the particular person in a statement does has something to do with their name or vice versa. **OR** **The response** **for part II** • identifies the disparity between 'slack' and 'energy'. **OR** **The response** **for part II** • provides the meaning of nominative *contra*-determinism as what a person does goes against what would be expected, considering their name.	Response is unintelligible or does not satisfy the requirements for any other grade.
			O
			No response has been made at any time.

Model Response:

I
The idea of nominative determinism is that a person is compelled to do something based on their name. For example, Ms Blossom's name involves flowers and therefore her name is related to horticulture, she was compelled to become the principal of a horticultural college due to the nature of her name.
II
The inspector's name is Slack which is a word used to mean lazy. If it was nominative determinism we would be assuming he would be lazy but he is not, he is energetic which shows nominative contra-determinism.

UNIT ONE ITEM 1

Marking Scheme

Notes:

1. **'Causes' means there is causality, in this case the name determines what the person does, the outcome is name driven. Language such as the following may be used: name determines occupation, name influences what a person does, name compels a person to do …, dictated by name to lead the life they did, the direction life took was because of name, they picked their occupation based on their name.**
2. **'What a person does is associated with their name or vice versa' means that there is no causality but there is a connection between what a person does and their name. Language such as the following may be used: correlate, coincide, fits with, matches. Responses stating that what a person achieves or does causes their name do not show the causality required (name causes what a person does) but this can gain credit as indicating association.**
3. **'Explains …', explicitly unpacks one of either the name or what the person does, e.g.**
   - **A person with the name Snowman wrote about cold, snowy areas. (what he does unpacked)/ D Snowman whose name is associated with cold wrote a book called 'Pole positions'. (name unpacked)**
   - **A person in charge of a college for learning about gardening has the name Blossom. (what she does unpacked)/ Ms Blossom, whose name is about flowers, is the head of a horticultural college. (name unpacked)**
   - **Usain Bolt's name means to be quick like lightning, and he holds the records for 100 m and 200 m. (name unpacked)**
4. **A 'relevant meaning of slack' could include lazy, unmotivated, lethargic or similar notions. To say that slack is the opposite of energy is not enough.**
5. **'Appropriate parts of the sentence' are to do with 'slack' and 'energy'.**
6. **When more than one statement is used as support, grade the response based on the treatment of the statement that would give the best result.**
7. **A response that uses irony and/or a derivative of it in such a way that it detracts from the quality of the response is eligible for any grade other than an A-grade.**

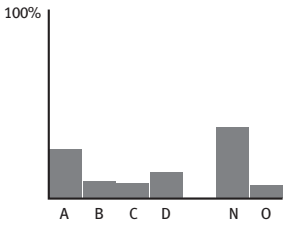
Unit Two

The item in this unit is based on a method for subdividing a section of land into smaller rectangular or square sections and naming the subdivided sections.

The following table shows the percentage of responses awarded the various grades for the item in this unit.

	A	B	C	D	E	N	O
Item 2	25.8	9.0	7.7	13.3		37.7	6.5
A shaded box indicates that the grade was not available for the item.							

Item 2



Item 2 is a three-star item that tested achievement in CCEs 37 *Applying a progression of steps to achieve the required answer*, 7 *Translating from one form to another*, 53 *Observing systematically* and 44 *Synthesising*.

This item required students to indicate the required section on the grid for part I and to name the section shaded on the grid using the 'quartering' method for part II. The cue instructed students to use pencil. There was a repeated response area provided in the back pages of the testpaper, but it is best for students to use pencil when responding on a specialist response area.

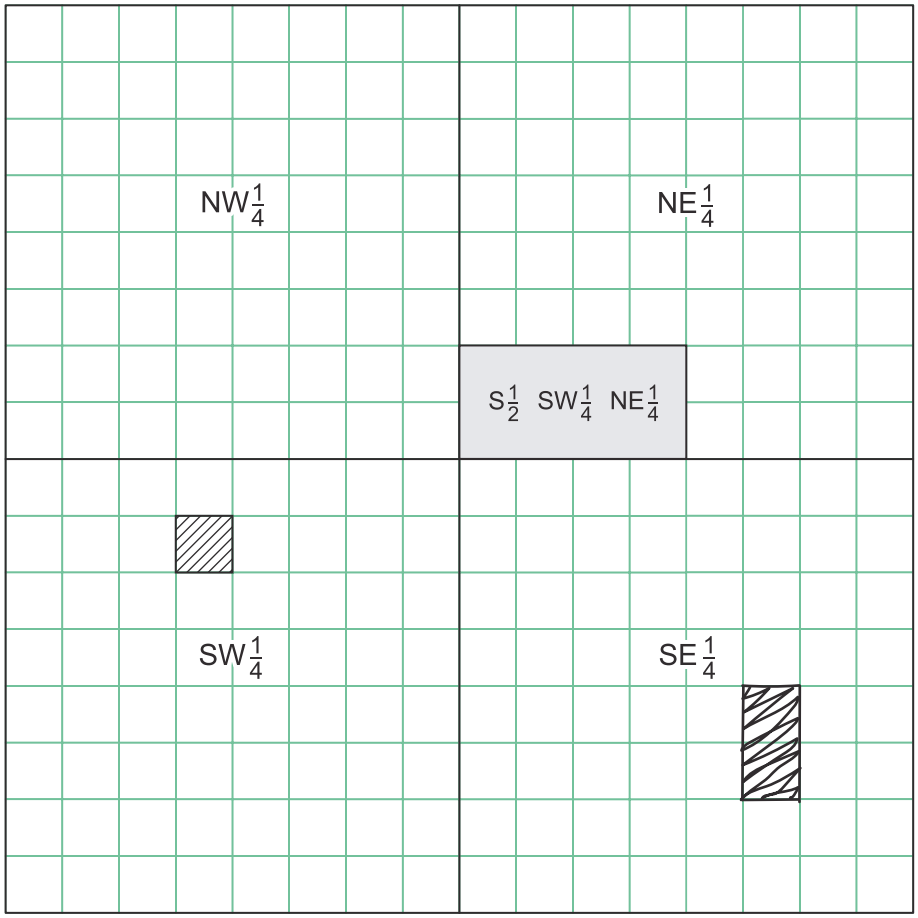
An A-grade response needed to shade the required section, E½ NW¼ SE¼ SE¼, on the grid and to give the correct name, SE¼ NE¼ NW¼ SW¼, for the section indicated on the grid.

Some responses showed that the pattern of working from right to left was not followed when determining the position of the given section. Other responses used ½ rather than the required ¼ in naming the section shown on the grid.

Students should remember when the stimulus provides a series of steps to follow accompanied by an example they should check for understanding by working through the steps to see if they obtain the same result as given in the example.

Model response

I.



II. SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$

UNIT TWO ITEM 2

Marking Scheme

PERFORMANCE DOMAIN	37 Applying a progression of steps to achieve the required answer 7 Translating from one form to another 53 Observing systematically	44 Synthesising

A

The response provides

for part I

- the required section indicated on the grid

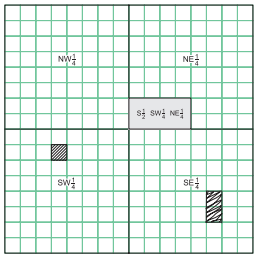
for part II

- the correct name:

$SE\frac{1}{4}\ NE\frac{1}{4}\ NW\frac{1}{4}\ SW\frac{1}{4}$.

Notes:

1. No credit can be given to part I of the response if there is more than one section indicated on the grid and it is not clear which section is to be marked.
2. A 'valid vertical rectangle' is twice as high as it is wide and is the result of a halving.
3. The rectangles on the template are consequentially correct valid vertical rectangles resulting from only one direction change in its location.
4. The grid with required section indicated:



B

The response provides

for part I

- the required section indicated on the grid

for part II

- <u>three</u> of

$SE\frac{1}{4} - NE\frac{1}{4} - NW\frac{1}{4} - SW\frac{1}{4}$

in the correct position working from the right.

OR

The response provides

for part I

- a rectangle as indicated on the template

for part II

- the correct name:

$SE\frac{1}{4}\ NE\frac{1}{4}\ NW\frac{1}{4}\ SW\frac{1}{4}$.

C

The response provides

for part I

- the required section indicated on the grid.

OR

The response provides

for part II

- the correct name:

$SE\frac{1}{4}\ NE\frac{1}{4}\ NW\frac{1}{4}\ SW\frac{1}{4}$.

OR

The response provides

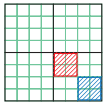
for part I either

- a rectangle as indicated on the template

OR

- a valid vertical rectangle

in $SE\frac{1}{4}\ SE\frac{1}{4}$ or in $NW\frac{1}{4}\ SE\frac{1}{4}$



for part II

- <u>two</u> of

$SE\frac{1}{4} - NE\frac{1}{4} - NW\frac{1}{4} - SW\frac{1}{4}$

in the correct position working from the right.

D

The response provides

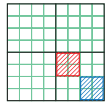
for part I either

- a rectangle as indicated on the template

OR

- a valid vertical rectangle

in $SE\frac{1}{4}\ SE\frac{1}{4}$ or in $NW\frac{1}{4}\ SE\frac{1}{4}$.



OR

The response provides

for part II

- <u>two</u> of

$SE\frac{1}{4} - NE\frac{1}{4} - NW\frac{1}{4} - SW\frac{1}{4}$

in the correct position working from the right.

OR

The response provides

for part II

- the name written in reverse order:

$SW\frac{1}{4}\ NW\frac{1}{4}\ NE\frac{1}{4}\ SE\frac{1}{4}$.

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Unit Three

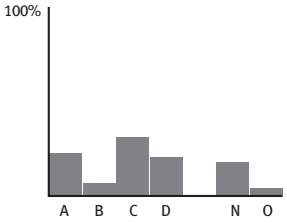
The item in this unit is based on the application of the Luhn algorithm used as part of the checking of validity of credit card numbers.

The following table shows the percentage of responses awarded the various grades for the item in this unit.

	A	B	C	D	E	N	O
Item 3	22.1	6.2	30.5	20.0		17.6	3.6
A shaded box indicates that the grade was not available for the item.							

Item 3

Commentary



Item 3 is a three-star item that tested achievement in CCEs 16 *Calculating with or without calculators*, 48 *Justifying*, 37 *Applying a progression of steps to achieve the required answer* and 34 *Interpolating*.

The introduction to this item explained that the Luhn algorithm (named after a former researcher from IBM) can help check whether the 16-digit number on a credit card is valid. A list of instructions for the algorithm was then provided.

This item consists of two parts. Students were required to follow the instructions of the Luhn algorithm to determine the missing digit in each of the two given credit card numbers so that those card numbers would be valid. The cue for each of the parts instructed students to show all steps and provide full reasoning.

An A-grade response needed to, for part I, provide valid reasoning leading to 9 as the missing digit and, for part II, to provide valid reasoning leading to 7 as the missing digit. No incorrect values could be used to obtain the results. The valid reasoning needed to indicate how the missing digit ensured the final value obtained using the Luhn algorithm was divisible by 10.

Some responses showed competency in applying instructions 1 to 4 but did not determine the value of the missing digit and simply stated that the card number was not valid. This was an incorrect statement as the stem required the number to be made valid by the correct value of the missing digit. Other responses did not follow the algorithm carefully for part II and hence did not double Y, the missing digit.

Students should remember that they need to read the introduction and the stem carefully paying particular attention to what they are being asked to determine. They should also take care to show how they have followed given instructions even if the instruction is easy enough to do without indicating full working.

Model response

I.

first total = 8 + [18]9 + 8 + 0 + 6 + 0 + [14]5 + 0 = 36
second total = 4 + 2 + 6 + 5 + 3 + 1 + 4 + X = 25 + X
final value = 36 + 25 + X = 61 + X.
next value divisible by 10 is 70
therefore X = 9

II.

first total = 8 + 2 + 8 + 4 + [16]7 + 4 + 2Y + [10]1 = 34 + 2Y
second total = 9 + 8 + 3 + 7 + 6 + 4 + 1 + 3 = 41
final value = 34 + 2Y + 41 = 75 + 2Y
next value divisible by 10 is 80, therefore 2Y = 5
Y must be a whole number so Y is a digit such
that 2Y = double digit where digit 1 + digit 2 = 5
2 x 7 = 14, and adding the digits = 1 + 4 = 5
therefore Y = 7

UNIT THREE ITEM 3

Marking Scheme

PERFORMANCE DOMAIN	16 Calculating with or without calculators 48 Justifying 37 Applying a progression of steps to achieve the required answer	34 Interpolating

A	B	C	D	N
The response provides for part I • valid reasoning leading to 9 as the missing digit for part II • valid reasoning leading to 7 as the missing digit. No incorrect values are used to obtain the results.	The response, allowing for at most one observable mechanical error and consequentially correct value/s, provides for part I • valid reasoning leading to the missing digit for part II • valid reasoning leading to the missing digit. OR The response provides for part I • 9 as the missing digit for part II • 7 as the missing digit. No incorrect values are used to obtain the results.	The response provides for part I • valid reasoning leading to 9 as the missing digit. No incorrect values are used to obtain the result. OR The response provides for part II • valid reasoning leading to 7 as the missing digit. No incorrect values are used to obtain the result. OR The response provides <u>four</u> of • first total for part I = 36 • the numerical component of the second total for part I = 25 • the numerical component of the final value for part I = 61 • the numerical component of the first total for part II = 34 • second total for part II = 41 • the numerical component of the final value for part II = 75. No incorrect values are used in the creditable part of the response.	The response provides <u>two</u> of • first total for part I = 36 • the numerical component of the second total for part I = 25 • the numerical component of the final value for part I = 61 • the numerical component of the first total for part II = 34 • second total for part II = 41 • the numerical component of the final value for part II = 75. No incorrect values are used in the creditable part of the response.	Response is unintelligible or does not satisfy the requirements for any other grade.

O
No response has been made at any time.

Notes:

1. 'Valid reasoning' indicates how the missing digit ensures the final value is divisible by 10.
2. 'Observable mechanical error' means that sufficient intermediate steps are shown to indicate how an error occurred. A mechanical error is:
   - a recognisable transcription error
   - an incorrect result of a correctly-stated operation
   - a failure to apply the Luhn algorithm correctly to a number on a card.

Model Response:

I
first total = 8 + [18]9 + 8 + 0 + 6 + 0 + [14]5 + 0 = 36
second total = 4 + 2 + 6 + 5 + 3 + 1 + 4 + X = 25 + X

final value = 36 + 25 + X = 61 + X.
next value divisible by 10 is 70
therefore X = 9

II
first total = 8 + 2 + 8 + 4 + [16]7 + 4 + 2Y + [10]1 = 34 + 2Y
second total = 9 + 8 + 3 + 7 + 6 + 4 + 1 + 3 = 41

final value = 34 + 2Y + 41 = 75 + 2Y
next value divisible by 10 is 80, therefore 2Y = 5
Y must be a whole number so Y is a digit such that 2Y = double digit where digit 1 + digit 2 = 5
$2 \times 7 = 14$, and adding the digits = 1 + 4 = 5
therefore Y = 7

Unit Four

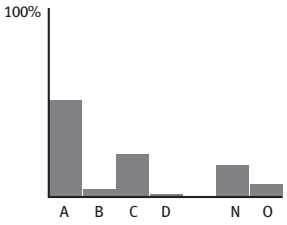
The items in this unit are based on poems called sestinas.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 4	50.8	3.5	22.5	0.8		16.2	6.1
Item 5	1.1	8.6	15.8	30.7	22.9	8.3	12.7
A shaded box indicates that the grade was not available for the item.							

Item 4

Commentary



Item 4 is a three-star item that tested achievement in CCEs 49 *Perceiving patterns*, 34 *Interpolating*, 7 *Translating from one form to another* and 35 *Extrapolating*.

This item required students to consider a particular type of poem called a sestina. The form of a sestina is defined by the way the end-words of each line in the first stanza are re-used in a set pattern at the end of the lines of other stanzas. The pattern was described in the introduction and it was made clear that a suitable homophone (a word that sounds the same but is spelled differently) could be used to replace an end-word.

The stimulus for this item was one stanza from a sestina called *Facebook Sestina*. Part I required students to determine the order of the end-words of the next stanza and write them, in correct order, in the last column of the response area table. Part II required students to determine the order of the end-words of the stanza before the given stanza and write them, in correct order, in the first column of the table.

An A-grade response needed to provide, in the last column, the correctly-positioned end-words (share, like, build, friends, alone, light) and, in the first column, the correctly-positioned end-words (friends, alone, share, build, light, like). Suitable homophones in correct position could replace end-words, e.g. lite for light or billed for build.

Some responses indicated that homophones had been incorrectly interpreted as words that rhyme.

Students should remember to follow all instructions carefully, and in particular, they should take note of where to write their responses in the given response area.

Model response

II. end-words of stanza **before**	end-words of given stanza	**I.** end-words of **next** stanza
friends	like	share
alone	friends	like
share	light	build
build	alone	friends
light	build	alone
like	share	light

UNIT FOUR ITEM 4

Marking Scheme

PERFORMANCE DOMAIN		
	49 Perceiving patterns	7 Translating from one form to another
	34 Interpolating	35 Extrapolating

A

The response provides all the correctly-positioned *end-words* as

II.	I.
friends	share
alone	like
share	build
build	friends
light	alone
like	light

B

The response provides

- all the correctly-positioned *end-words* for either part I OR part II

II.	I.
friends	share
alone	like
share	build
build	friends
light	alone
like	light

OR

AND

for the other part

- THREE correctly-positioned *end-words*.

OR

The response provides

II.	I.
share	friends
like	alone
build	share
friends	build
alone	light
light	like

C

The response provides

- all the correctly-positioned *end-words* for either part I OR part II

II.	I.
friends	share
alone	like
share	build
build	friends
light	alone
like	light

OR

OR

The response provides SIX correctly-positioned *end-words*.

D

The response provides FOUR correctly-positioned *end-words*.

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

UNIT FOUR ITEM 4

Marking Scheme

Model Response:

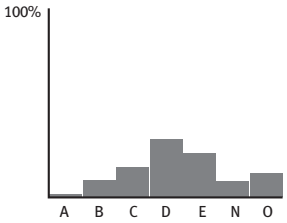
II. end-words of stanza **before**	end-words of given stanza	**I.** end-words of **next** stanza
friends	like	share
alone	friends	like
share	light	build
build	alone	friends
light	build	alone
like	share	light

Notes:

1. **For all creditable grades:**
   - **treat 'friend' as an acceptable form of the end-word 'friends'**
   - **accept an incorrectly spelled word if the word is unambiguously recognisable as the correct end-word.**
2. **For the B-, C- and D-grades, accept end-words that are either altered by the addition of an 's' as the final letter, e.g. lights, or written in a different tense, e.g. shared, but are still clearly recognisable.**
3. **A correctly-positioned end-word may be replaced by a suitable homophone (a word that sounds the same but is spelled differently), for example, lite/light, build/billed.**
4. **If a word is written more than once within a single column ignore all the multiple entries in that column. Use the remaining end-words in awarding a grade.**
5. **Words must be provided to gain credit. Other indicative methods, for example, numbering, individual lettering or use of symbols, do not gain credit.**

Item 5

Commentary



Item 5 is a four-star item that tested achievement in CCEs 28 *Empathising*, 46 *Creating/composing/devising*, 31 *Interrelating ideas* and 26 *Explaining to others*.

This item introduced the idea of sestinas having a final 3-line stanza called an envoi, which delivers the overall message of the sestina. The stimulus for the item provided selected parts of a sestina based on winning and competition.

Part I of this item required students to propose a credible message that could be conveyed by the provided sestina and explain how each of the parts helps to establish that message. For part II, students were required to compose three lines to finish the incomplete stanza. The lines had to continue the sentiments expressed, answer a question that was posed in line 3 and use 'one', 'too' and 'thrive' (or suitable homophones), in that order, as the end-words. The cue directed students to use five to ten words for each line and conclude line 6 with a full stop, question mark or exclamation mark.

An A-grade response needed, for part I, to provide *the* message and explain how each of the three sestina-parts relate to that message. *The* message had to incorporate the notion that some thought must be given to others within a universal/holistic context and include a negative view of winning/competition. For part II, the response needed to provide three lines that addressed the question posed in line 3, use the three end-words correctly, include a punctuation mark at the end of line 6 and continue a negative view of winning and/or competition.

For part I of the item some responses made reference to a negative view of winning/competition only on a personal or individual level and this was regarded only as *a* message. Other responses did not give a full explanation of how each part of the sestina contributed to the message identified. For part II, some responses did address the question 'Worth striving for?' and did continue a negative view of winning/competition but did not show that the basic instructions to use the end-words, in the correct order, or to use a punctuation mark at the end of the third line, had been followed.

Students should remember to follow all instructions and cues carefully. They should refer explicitly to the stimulus provided when giving explanations and not rely on a reader having to infer what they mean to say.

Model response

I.

The message is: if the whole world is to be better off then instead of individuals putting all their energies into being the best (number one) they should look to improve everyone's lot in life.
The first stanza mocks those who come first by saying 'gloating's free' and 'I hope it (the winner's wreath) sticks'. The unfinished stanza says clearly that always thinking that winning is the best is bad for you, a 'poison pill'. The envoi sums up the sestina's message in that for the best outcome for everyone break free of competition and the world will be better off.

II.

line four No, not at all, not merely to have won.

line five Always wanting to be one not two

line six will not help the world to thrive.

UNIT FOUR ITEM 5

Marking Scheme

PERFORMANCE DOMAIN	28 Empathising	31 Interrelating ideas …
	46 Creating/composing/devising	26 Explaining to others

A

The response

for part I

- provides *the* message
- explains how each of the THREE sestina-parts relate to *the* message

for part II

- provides THREE lines that address the question posed in line 3 of the incomplete stanza
- uses the THREE end-words/ suitable homophones correctly
- includes a punctuation mark to end line 6
- continues a negative view of winning and/or competition.

B

The response

for part I

- provides *the* message
- explains how the envoi and ONE other sestina-part relate to the message

for part II

- provides THREE lines that address the question posed in line 3 of the incomplete stanza
- uses TWO end-words/suitable homophones correctly
- continues a negative view of winning and/or competition.

OR

The response

for part I

- gives *a* message
- explains how each of the THREE sestina-parts relates to the message given.

for part II

- provides THREE lines that address the question posed in line 3 of the incomplete stanza
- uses the THREE end-words/suitable homophones correctly
- includes a punctuation mark to end line 6
- continues a negative view of winning and/or competition.

C

The response

for part I

- provides *the* message
- explains how the envoi relates to the message

for part II

- provides TWO lines that address the question posed in line 3 of the incomplete stanza
- uses TWO end-words/suitable homophones correctly
- continues a negative view of winning and/or competition.

OR

The response

for part I

- gives *a* message
- explains how the envoi and ONE other sestina-part relate to the message given

for part II

- provides THREE lines that address the question posed in line 3 of the incomplete stanza
- uses TWO end-words/suitable homophones correctly
- continues a negative view of winning and/or competition.

D

The response

for part I

- gives *a* message
- explains how any TWO of the sestina-parts relate to the message given.

OR

The response

for part II

- provides THREE lines that address the question posed in line 3 of the incomplete stanza
- uses TWO end-words/suitable homophones correctly
- continues a negative view of winning and/or competition.

E

The response

for part I

- gives *a* message
- explains how ONE of the sestina-parts relates to the message given.

OR

The response

for part I

- explains TWO sestina-parts, both of which are consistent with a reasonable reading of each part and are negative.

OR

The response

for part II

- provides THREE plausible lines
- uses TWO end-words/ suitable homophones correctly.

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

UNIT FOUR ITEM 5

Model Response:

I

The message is: if the whole world is to be better off then instead of individuals putting all their energies into being the best (number one) they should look to improve everyone's lot in life. The first stanza mocks those who come first by saying 'gloating's free' and 'I hope it (the winner's wreath) sticks'. The unfinished stanza says clearly that always thinking that winning is the best is bad for you, a 'poison pill'. The envoi sums up the sestina's message in that for the best outcome for everyone break free of competition and the world will be better off.

II

line four — No, not at all, not merely to have won.
line five — Always wanting to be one not two
line six — will not help the world to thrive.

Marking Scheme

Notes:

1. ***The*** **message must incorporate the 'big-picture notion' that some thought must be given to others within a universal/holistic context and include a negative view of 'winning/competition'.**
2. ***A*** **message is to be based on a reasonable reading of the sestina and present negative ideas around the individual/self 'winning/competing'.**
3. ***The*** **message is automatically able to gain credit as *a* message.**
4. **An explanation is able to gain credit when for the**
   - **first part of the sestina, for both *the* message and *a* message, the response deals with the contradictory nature of this part, for example, mentions sarcasm or 'tongue-in-cheek' or that the words say one thing but mean another**
   - **second part of the sestina, for both *the* message and *a* message, the response refers to the notion of 'winning/competition' being negative**
   - **third part of the sestina, for *the* message, the response refers to the idea that everyone/ society would be better off if 'winning/competition' did not exist or**
   - **third part of the sestina, for *a* message, the response refers to the idea that the individual pursuit of 'winning/competition' is undesirable.**
5. **For part II, a response is considered to address the question posed in line 3 of the incomplete stanza when a negative answer to 'Worth striving for?' is provided, either directly or indirectly.**
6. **For part II, 'correct use' of the end-words (or suitable homophones) means that they are placed correctly as the last word on each line and follow the correct sequence from line to line, that is, one–too–thrive.**
7. **For part II 'suitable' homophones are:**
   - **line four: 'one' *or* 'won'**
   - **line five: 'to' *or* 'two' *or* 'too'.**
8. **For part II, for the E-grade, plausible lines present ideas about 'winning/competition'.**

Unit Five

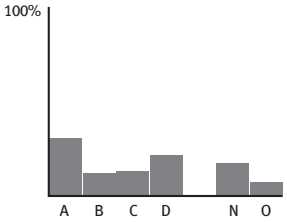
The items in this unit are based on the changes to theatre seats over time and how they are arranged to give a comfortable viewing experience.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 6	30.4	11.6	12.6	21.4		17.2	6.8
Item 7	5.6	0.9	5.7	5.1		68.4	14.3
A shaded box indicates that the grade was not available for the item.							

Item 6

Commentary



Item 6 is a three-star item that tested achievement in CCEs 51 *Identifying shapes in two and three dimensions*, 18 *Approximating a numerical value* and 16 *Calculating with or without calculators*.

This item required students to calculate how many fewer seats were installed in a section of a renovated movie theatre if the floor space taken up by the original seats was the maximum that could be used for the new seating. The cue instructed students to show all steps and provide full reasoning.

An A-grade response needed to provide valid steps to give the correct whole number of new rows as 11, whole number of new seats per row as 12 and the difference between the number of old seats and the number of new seats as 108. No incorrect working could be used to arrive at the results.

Some responses were based on finding the area of the floor space, the area of one new chair and dividing to find the number of new seats able to fit in the space. This method is not valid as it does not take into account that whole seats must be considered per row and whole rows.

Students should remember to read the stimulus carefully to understand the context and to consider the reasonableness of their answers within a context. It is important for students to know that to attend to the cue, 'provide full reasoning', explicitly written information on what is being found must be included with the calculations so the solution method can be easily followed.

Model response

old seats = 15 x 16 = 240 seats

15 rows using old size gives 15 x 85 = 1275 cm of room for rows

new size rows to fit into old space = 1275 ÷ 110 = 11.59 which allows 11 new rows of seats

16 seats using old size gives 16 x 50 = 800 cm of room for width of row

new size seats to fit into old space = 800 ÷ 65 = 12.30 which allows 12 seats per row

new seats = 11 x 12 = 132 seats

there are 240 – 132 = 108 fewer new seats able to fit

UNIT FIVE ITEM 6

Marking Scheme

PERFORMANCE DOMAIN	51 Identifying shapes in two and three dimensions 18 Approximating a numerical value 16 Calculating with or without calculators

A	B	C	D	N
The response provides valid steps that give the correct • whole number of new rows as 11 • whole number of new seats per row as 12 • difference between number of old seats and number of new seats as 108. No incorrect working is used to arrive at the results.	The response, allowing for at most one observable mechanical error and consequentially correct value/s, provides valid steps that give • a whole number of new rows • a whole number of new seats per row • a difference between number of old seats and number of new seats. OR The response provides valid steps that give the correct • whole number of new rows as 11 • whole number of new seats per row as 12 No incorrect working is used to arrive at the results being credited.	The response provides steps that give • a number of new seats between 133 and 156 • a consequentially correct difference between 240 old seats and number of new seats.	The response provides <u>two</u> of the correct • length of the section (1275 cm / 12.75 m) • number of new rows • width of the section (800 cm / 8 m) • number of new seats per row • total number of old seats (240) • area of an old seat (4250 cm^2 / 0.425 m^2) • area of a new seat (7150 cm^2 / 0.715 m^2) • area of section. (1020000 cm^2 / 102 m^2) No incorrect working is used to arrive at the results being credited.	Response is unintelligible or does not satisfy the requirements for any other grade. O No response has been made at any time.

Model Response:

old seats = $15 \times 16 = 240$ seats

15 rows using old size gives $15 \times 85 = 1275$ cm of room for rows

new size rows to fit into old space = $1275 \div 110 = 11.59$ which allows 11 new rows of seats

16 seats using old size gives $16 \times 50 = 800$ cm of room for width of row

new size seats to fit into old space = $800 \div 65 = 12.30$ which allows 12 seats per row

new seats = $11 \times 12 = 132$ seats

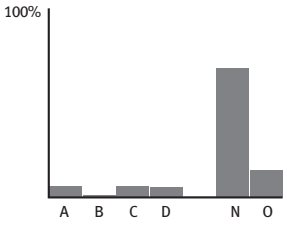
there are $240 - 132 = 108$ fewer new seats able to fit

Note:

1. 'Observable mechanical error' means that sufficient intermediate steps are shown to indicate how an error occurred. A mechanical error is:
   - a recognisable transcription error, which can include consistent use of the number of original seats and rows in place of each other
   - an incorrect result of a correctly-stated operation
   - rounding up the number of new rows.

Item 7

Commentary



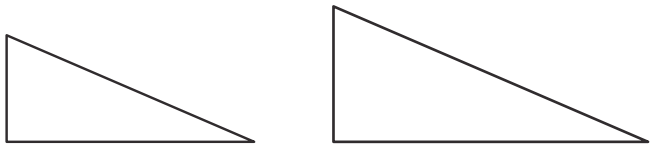
Item 7 is a four-star item that tested achievement in CCEs 32 *Reaching a conclusion which is necessarily true provided a given set of assumptions is true*, 50 *Visualising*, 6 *Interpreting the meaning of diagrams* and 16 *Calculating with or without calculators*.

This item required students to determine the height of a platform used to raise the seat of a person sitting 110 cm behind another, if the platform is high enough so the line of sight of the person behind is 20 cm above the eye level of the person in front. A rough, not-to-scale sketch was provided as part of the stimulus. The cue instructed students to show all steps and provide full reasoning. The students were not directed to a particular method; they were able to work to their strengths.

An A-grade response needed to provide clear reasoning and valid steps that gave the correct platform height. A response showing clear reasoning included sufficient detail so that an inference did not need to be made regarding the steps used. Valid steps used similar triangles or trigonometry. Use of Pythagoras' theorem alone would not allow a solution to be found but could be used in conjunction with either similar triangles or trigonometry.

Some responses clearly showed there had been difficulty visualising the situation. Students would benefit from redrawing diagrams and adding helpful labels and measurements as this allows a better understanding of what they are working with. Having an annotated diagram assists in providing full reasoning.

Model response



$$\frac{\text{vertical height from ground to eye of person behind}}{10 + 1.1} = \frac{0.20 + 0.80 + 0.45}{10}$$

$$\text{vertical height from ground to eye of person behind} = \frac{1.45}{10} \times 11.1 = 1.6095$$

$$\text{height of platform} = 1.6095 - 1.25 = 0.3595 = 35.95 \text{ cm}$$

UNIT FIVE ITEM 7

Marking Scheme

PERFORMANCE DOMAIN	32 Reaching a conclusion which is necessarily true provided a given set of assumptions is true 50 Visualising 16 Calculating with or without calculators 6 Interpreting the meaning of … diagrams …

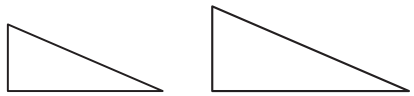
A	B	C	D	N
The response provides clear reasoning and valid steps that give • the correct platform height. No incorrect working is used to arrive at the result.	The response, allowing for at most one observable mechanical error and consequentially correct value/s, provides valid steps that give • a platform height.	The response, allowing for at most one observable mechanical error and consequentially correct value/s, provides valid steps that give • a relevant vertical height. OR The response provides valid steps that give • a relevant vertical height • a consequentially correct platform height.	The response provides valid steps that give • a vertical height. OR The response provides the angle at the point on the floor as 8.25° (0.144 radians / 9.167 gradians). OR The response provides the angle above the eye of the person in front as 81.75° (1.427 radians / 90.833 gradians).	Response is unintelligible or does not satisfy the requirements for any other grade.

O
No response has been made at any time.

Notes:

1. 'Clear reasoning' has sufficient detail shown so that an inference does not need to be made regarding the steps used.
2. 'Valid steps' involve the use of similar triangles or trigonometry to find a vertical height.
3. The 'correct height' of the platform requires units and is between 35.9 cm – 36 cm or 0.359 m – 0.36 m or 359 mm – 360 mm inclusive.
4. Ratios used as part of valid steps must have appropriate internally consistent units.
5. 'Observable mechanical error' means that sufficient intermediate steps are shown to indicate how an error occurred. A mechanical error is:
   - a recognisable transcription error
   - an incorrect result of a correctly-stated operation
   - a conversion error
   - inappropriate rounding
   - consistent, incorrect labelling of a trigonometric ratio.
6. A 'relevant vertical height' is part of the height from ground to eye of person behind that could be used to find the height of the platform.

Model Response:



$$\frac{\text{vertical height from ground to eye of person behind}}{10 + 1.1} = \frac{0.20 + 0.80 + 0.45}{10}$$

$$\text{vertical height from ground to eye of person behind} = \frac{1.45}{10} \times 11.1 = 1.6095$$

$$\text{height of platform} = 1.6095 - 1.25 = 0.3595 = 35.95 \text{ cm}$$

Unit Six

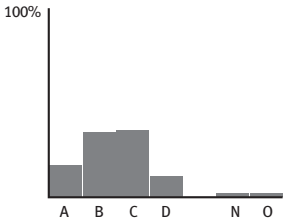
The item in this unit is based on a motivational poster containing the statement 'Believe in Yourself'.

The following table shows the percentage of responses awarded the various grades for the item in this unit.

	A	B	C	D	E	N	O
Item 8	16.5	34.0	35.2	10.8		1.8	1.7
A shaded box indicates that the grade was not available for the item.							

Item 8

Commentary



Item 8 is a three-star item that tested achievement in CCEs 27 *Expounding a viewpoint*, 48 *Justifying*, 5 *Interpreting the meaning of pictures*, 42 *Criticising*, 48 *Justifying* and 31 *Interrelating ideas*.

This item consisted of two parts, both of which required students to respond to a motivational poster which featured a domestic kitten reflected in a puddle of water as a tiger, with the words, 'Believe in Yourself', at the top of the poster.

For part I, students were required to argue the case that the image in the poster reinforces the motivational meaning of the words. For part II, students had to explain how the image might work against what the words mean. The cues for both parts instructed students to refer to the image and the words to support their response.

An A-grade response needed, for part I, to give a suitable meaning of the words; make clear how the *image* (i.e. the tiger-as-reflection-of-kitten component of the poster) strengthened this meaning; use aspects of the kitten and the tiger to support the clarification and recognize the application to human motivation. For part II, the response needed to clearly describe the manner in which the *image* undermines a suitable meaning of the words and refer to the *image* to support the description. In both parts, the response needed to not be inconsistent with a reasonable understanding of the poster.

Stronger responses provided arguments that were easily followed and were so well explained that no inferences needed to be made. In lesser quality responses, it was necessary to make inferences to connect the argument with the meaning of the words and the aspects of the *image* or poster.

Students should remember to provide an interpretation in their own words when asked for a meaning rather than merely restate the given words as if their interpretation was obvious.

Model response

I.

The image in the poster shows a small kitten looking into a puddle of water on the floor. The reflection in the water is that of a mighty tiger. This image reinforces the motivational meaning of the words 'Believe in yourself' as it is showing that the kitten sees herself and believes herself to be so much more and to be capable of much greater things than her outward appearance suggests. This is seen as while others may see only a small, cute, grey kitten the kitten sees itself as a fierce and powerful grey tiger. This is implying that people should not determine their worth or capabilities based on what others see or say about you. Instead you should base it on what you see of yourself when you look in the mirror or what you see yourself becoming. The image and words on the poster are saying you should believe in yourself and strive for what you want regardless of what others may see.

II.

The image might work against what the words mean, as regardless of how strongly the kitten believes in itself, it is physically impossible for it to transform into the tiger seen in the reflection in the water. Therefore this goal is impractical and unrealistic. This may work against the words 'Believe in yourself', which are intended to be motivational and inspiring, as some may interpret the poster as being sarcastic. It could be seen as portraying the message that no matter how hard you work or how much self-belief you have, some goals are simply unobtainable and impossible which would mean there is no point in trying.

UNIT SIX ITEM 8

Marking Scheme

PERFORMANCE DOMAIN	27 Expounding a viewpoint 48 Justifying 5 Interpreting the meaning of pictures …	42 Criticising 31 Interrelating ideas …

A

The response

for part I

- **gives a suitable meaning of the words**
- **makes clear how the *image* strengthens this meaning**
- **uses aspects of the kitten AND the tiger to support the clarification**
- **recognises the application to human motivation**

for part II

- **clearly describes the manner in which the *image* undermines a suitable meaning of the words**
- **refers to the *image* to support the description.**

The response is not inconsistent with a reasonable understanding of the poster.

B

The response

for part I

- **gives a suitable meaning of the words**
- **makes clear how the *image* strengthens this meaning**
- **uses aspects of the kitten AND the tiger to support the clarification**
- **recognises the application to human motivation.**

The creditable part of the response is not inconsistent with a reasonable understanding of the poster.

OR

The response

for part I

- **allows a suitable meaning of the words to be interpreted**
- **links an aspect of the poster with this meaning**

for part II

- **clearly describes the manner in which the *image* undermines a suitable meaning of the words**
- **refers to the *image* to support the description.**

The response in part I or part II recognises the application to human motivation.

The response is not inconsistent with a reasonable understanding of the poster.

C

The response

for part I

- **allows a suitable meaning of the words to be interpreted**
- **links an aspect of the poster with this meaning**

for part II

- **suggests incompatibility by referring to an aspect of the poster.**

The response is not inconsistent with a reasonable understanding of the poster.

OR

The response

for part II

- **clearly describes the manner in which the *image* undermines a suitable meaning of the words**
- **refers to the *image* to support the description.**

The response in part I or part II recognises the application to human motivation.

The creditable part of the response is not inconsistent with a reasonable understanding of the poster.

D

The response

for part I

- **allows a suitable meaning of the words to be interpreted**
- **links an aspect of the poster with this meaning.**

OR

The response

for part II

- **suggests incompatibility by referring to an aspect of the poster.**

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Notes:

1. **Throughout the marking scheme, the *image* is the tiger-as-reflection-of-kitten component of the poster.**
2. **A 'suitable meaning' is not inconsistent with the words and the fact that they are on a poster designed to motivate.**
3. **'Makes clear' means the argument is easily followed and is so well explained that no inferences need to be made.**
4. **An 'aspect' is an attribute, quality, feature, or 'something about' that is useful in the context.**
5. **'Incompatibility' is between the words and image, and means they do not match.**
6. **There is no penalty for misnaming the kitten or the tiger as other felines, e.g. cub or leopard.**
7. **A reasonable understanding of the poster takes into account the words, the graphic and that they are on a poster whose purpose is to motivate.**

Unit Seven

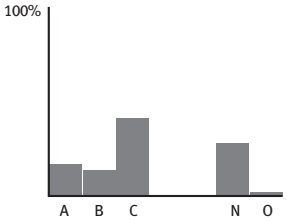
The items in this unit are based on materials able to be recycled from smartphones and how they will be used to produce the medals for the 2020 Olympic and Paralympic Games in Tokyo.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 9	16.5	13.1	40.8			27.8	1.8
Item 10	10.0	11.5	27.3	6.3	13.7	22.9	8.3
A shaded box indicates that the grade was not available for the item.							

Item 9

Commentary



Item 9 is a two-star item that tested achievement in CCE16 *Calculating with or without calculators* and 29 *Comparing*.

This item required students to use the information in the given table to complete three statements. Adding the given mass of some materials then subtracting from the given total was required to complete the first statement and finding a percentage for the second statement. To complete the third statement, students were required to find the value of the silver and gold able to be extracted from one smartphone, compare to see which had the greater value and state by how much. The cue instructed students to round numerical responses to two decimal places.

An A-grade response, for part I, needed to give 88.61 (the mass of the 'other' materials, in grams to two decimal places) and 19.38 (the percentage of aluminium able to be extracted from a typical smartphone). For part II, the response needed to show that the value of gold extracted from a smartphone is greater than the value of silver by $0.58.

Some responses did not comply with the direction in the cue to round to two decimal places while others did not give the final value as a dollar value as required.

Students should read all information carefully and respond in the required manner.

Model response

I.

(a) The mass of the 'other' materials able to be extracted from a typical smartphone is

..... 88.61 ..... grams.

(b) Based on mass, the aluminium able to be extracted from a typical smartphone is

..... 19.38 ..... % of total materials.

II.

When extracted from a typical smartphone, the value of ..... gold ..... recovered is greater than the value of ..... silver ..... by $ ..... 0.58 .....

UNIT SEVEN ITEM 9

Marking Scheme

PERFORMANCE DOMAIN	16 Calculating with or without calculators	29 Comparing

A	B	C	N	O
The response provides **for part I** • **88.61** • **19.38** **for part II** • **gold — silver — 0.58.**	**The response provides** **for part I** • **88.61** • **19 to 19.4 inclusive** **for part II** • **gold — silver — 0.57 to 0.6 inclusive or 57.8 cents or 58 cents.** **OR** **The response provides** **for part I** • **88.61** • **19.38** **for part II** • **0.58 or 58 cents.**	**The response provides TWO of the three required values** • **88.61** • **19 to 19.4 inclusive** • **0.57 to 0.6 inclusive or 57.8 cents or 58 cents.**	**Response is unintelligible or does not satisfy the requirements for any other grade.**	**No response has been made at any time.**

Model Response:

I

(a) 88.61

(b) 19.38

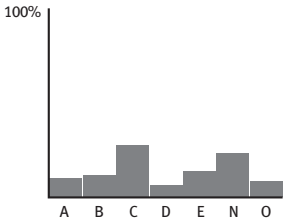
II

gold …

silver … 0.58

Item 10

Commentary



Item 10 is a four-star item that tested achievement in CCEs 48 *Justifying*, 16 *Calculating with or without calculators*, 6 *Interpreting the meaning of tables*, 22 *Structuring a mathematical argument* and 43 *Analysing*.

This item required students to determine the minimum total number of smartphones that would need to be recycled to be able to produce all the gold and all the silver medals for the Tokyo Games in 2020. A total of 5130 medals, made up of an equal number of gold, silver and bronze medals each with a mass of 500 grams, were to be made. Tables providing percentage composition of each medal and the average mass of materials able to be extracted, in grams per smartphone, were given. The cue instructed students to show all steps and to provide full reasoning.

An A-grade response needed to provide clear reasoning to determine the correct minimum number of phones as between 4996620 and 5000040 inclusive. The response needed to include a statement recognising that the required mass of gold has no effect on the number of smartphones needed to produce the medals. No incorrect calculations were to be used to arrive at the answer.

Some responses showed that the correct percentages were chosen from the composition table and the mass of gold and silver could be successfully determined. Fewer responses were able to correctly use the number of grams per smartphone to convert the mass to the minimum number of phones to be recycled. A statement regarding the mass of gold not impacting on the number of smartphones was sometimes omitted. Explicitly stating this information formed part of providing the full reasoning as directed in the cue.

Students should remember to attend to directions in cues. For responses with several steps it is important to show each calculation and solution with correct units and to indicate, with words, what is being calculated at each step. This increases the clarity of a response and assists students to keep track as they put the various parts of a response together.

Model response

number of gold and silver medals required = $\frac{5130}{3} = 1710$

mass of gold for 1 gold medal 1.2% of 500g = 6 g
for 1710 medals = 10 260 g
number of phones for the gold in gold medals = $\frac{10\,260}{0.034}$ = 301 764.7 … phones

mass of silver for 1 gold medal 98.8% of 500g = 494 g
for 1710 medals = 844 740 g
number of phones for the silver in gold medals = $\frac{844\,740}{0.34}$ = 2 484 529.4 … phones

The number of phones required for the silver in gold medals would also give the gold required hence 2 484 530 phones would be needed to make the gold medals.

mass of silver for 1 silver medal = 500 g
for 1710 medals = 855 000 g
number of phones for the silver in silver medals = $\frac{855\,000}{0.34}$ = 2 514 705.8 … phones

Therefore total number of phones required to yield the mass of gold and silver needed for the gold and silver medals = 2 484 530 + 2 514 706 = 4 999 236 phones.

UNIT SEVEN ITEM 10

Marking Scheme

PERFORMANCE DOMAIN	48 Justifying 16 Calculating with or without calculators 6 Interpreting the meaning of tables …	22 Structuring … a mathematical argument 43 Analysing

A	B	C	D	E	N
The response provides clear reasoning to determine correct • minimum number of phones between 4 996 620 and 5000040 inclusive. The response includes a statement correctly recognising that the required mass of gold has no effect on the number of phones. No incorrect calculations are used to arrive at the answer.	The response provides clear reasoning to determine correct • minimum number of phones between 4996620 and 5000040 inclusive. No incorrect calculations are used to arrive at the answer. **OR** The response, allowing for at most one observable mechanical error and consequentially correct value/s, provides clear reasoning to determine • minimum number of phones. The response includes a statement recognising the effect that the mass of gold has on the number of phones.	The response provides evidence of calculations that could determine two of • mass of gold in gold medal/s • mass of silver in gold medal/s • mass of silver in silver medal/s *AND* two of • number of phones required for mass of gold in gold medal/s • number of phones required for mass of silver in gold medal/s • number of phones required for mass of silver in silver medal/s. **OR** The response provides the correct • mass of gold in gold medal/s • mass of silver in gold medal/s • mass of silver in silver medal/s *AND* • minimum number of phones between 4996620 and 5000040 inclusive.	The response provides evidence of calculations that could determine one of • mass of gold in gold medal/s • mass of silver in gold medal/s • mass of silver in silver medal/s *AND* one of • number of phones required for mass of gold in gold medal/s • number of phones required for mass of silver in gold medal/s • number of phones required for mass of silver in silver medal/s.	The response provides evidence of a calculation that could determine one of • mass of gold in gold medal/s • mass of silver in gold medal/s • mass of silver in silver medal/s. **OR** The response provides evidence of a calculation that uses • a mass divided by 0.034 to determine number of phones required for a mass of gold *OR* • a mass divided by 0.34 to determine number of phones required for a mass of silver.	Response is unintelligible or does not satisfy the requirements for any other grade.
					O
					No response has been made at any time.

Notes:

1. 'Observable mechanical error' means that sufficient intermediate steps are shown to indicate how an error occurred. A mechanical error is:
   - a recognisable transcription error
   - an incorrect result of a correctly-stated operation
   - inappropriate rounding or mismanaged units
   - failure to sum the number of phones required for all the silver and all the gold medals
2. A response provides 'evidence' of a calculation when it provides mathematical statement/s identifiable as relevant to a solution.

Unit Eight

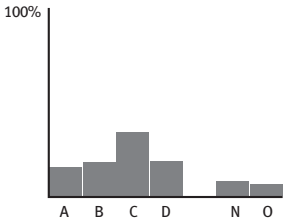
The items in this unit are based on two passages from a novel set in the late 19th and early 20th centuries about an incident that occurred at a séance.

The following table shows the percentage of responses awarded the various grades for the items in this unit.

	A	B	C	D	E	N	O
Item 11	15.4	18.2	33.9	18.6		8.0	6.1
Item 12	15.5	18.9	30.2	10.8	4.8	8.5	11.3
Item 13	6.7	17.4	28.1	12.9		14.6	20.4
A shaded box indicates that the grade was not available for the item.							

Item 11

Commentary



Item 11 is a three-star item that tested achievement in CCEs 48 *Justifying*, 4 *Interpreting the meaning of words*, 28 *Empathising* and 26 *Explaining to others*.

This item consisted of two parts. Part I required students to make clear how it is revealed that Angier is authoritative in both passages. Part II required students to select one of three characteristics that were given and make clear how the chosen characteristic is revealed in one passage. The cue for both parts instructed students to explain fully by doing more than simply supplying quotes.

An A-grade response for part I needed to provide evidence from both passages and make clear how this evidence portrays Angier as authoritative. For part II, the response needed to provide evidence from one passage and make clear how this evidence supports the chosen characteristic of Angier.

Some responses did not provide suitable evidence to support the characteristics in part II because the meaning of the chosen word was obviously not known.

Students should remember, when responding to items that require interpretation of a word, that repeating the word does not show they know the meaning and so will not gain credit. They should use their own words to explain meanings.

Model response

I.

In passage 1, Angier's authoritativeness is revealed when he loudly proclaims 'Hold him there'. He is erect and calm when questioning Borden. He does not bluster; he shows authority when he tells Borden, who has come to denounce him, that he will be following him. He shows no fear but merely commands his assistant to 'Get him out of here.' This shows that he has a commanding presence — his words are understood despite the chaos.

In passage 2, Angier relates the episode quite calmly. He questions Borden in a polite but direct way, 'Who are you, sir? What interest do you have in my affairs?' When Borden lies about his identity Angier continues to expect an answer, 'What's your business with me?' Finally he is able to order his man to, 'Get rid of him.' This shows his authoritativeness because he commands others to act for him. He is the leader and he is to be obeyed.

II.

Angier is shown to be *vindictive*, but only in passage 1. Angier's desire for revenge is apparent when he says that he will be 'following [Borden's] career with the greatest attention.'

This has the air of a threat and suggests that Angier will seek revenge on Borden at some point in the future.

UNIT EIGHT ITEM 11

Marking Scheme

PERFORMANCE DOMAIN		
	48 Justifying	28 Empathising
	4 Interpreting the meaning of words …	26 Explaining to others

A

The response

for part I

- provides evidence from <u>both</u> passages
- makes clear how this evidence portrays Angier as authoritative

for part II

- provides evidence from one passage
- makes clear how this evidence supports the chosen characteristic of Angier.

B

The response

for part I

- provides evidence from <u>one</u> passage
- makes clear how this evidence portrays Angier as authoritative

for part II

- provides evidence from one passage
- makes clear how this evidence supports the chosen characteristic of Angier.

OR

The response

for part I

- provides evidence from <u>both</u> passages
- makes clear how this evidence portrays Angier as authoritative

for part II

- provides suitable evidence/commentary based on one passage, that aligns with the chosen characteristic of Angier.

C

The response

for part I

- provides evidence from <u>both</u> passages
- makes clear how this evidence portrays Angier as authoritative.

OR

The response

for part II

- provides evidence from one passage
- makes clear how this evidence supports the chosen characteristic of Angier.

OR

The response

for part I

- provides evidence from <u>one</u> passage
- makes clear how this evidence portrays Angier as authoritative

for part II

- provides suitable evidence/commentary that aligns with the chosen characteristic of Angier.

D

The response

for part I

- provides evidence from <u>one</u> passage
- makes clear how this evidence portrays Angier as authoritative.

OR

The response

for part I

- provides suitable evidence/commentary based on <u>both</u> passages, that aligns with the notion of 'authoritative'.

OR

The response

for part I

- provides suitable evidence/commentary based on <u>one</u> passage that aligns with the notion of 'authoritative'

for part II

- provides suitable evidence/commentary that aligns with the chosen characteristic of Angier.

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

UNIT EIGHT ITEM 11

Marking Scheme

Model Response:

I

In passage 1, Angier's authoritativeness is revealed when he loudly proclaims 'Hold him there'. He is erect and calm when questioning Borden. He does not bluster; he shows authority when he tells Borden, who has come to denounce him, that he will be following him. He shows no fear but merely commands his assistant to 'Get him out of here.' This shows that he has a commanding presence — his words are understood despite the chaos.
In passage 2, Angier relates the episode quite calmly. He questions Borden in a polite but direct way, 'Who are you, sir? What interest do you have in my affairs?' When Borden lies about his identity Angier continues to expect an answer, 'What's your business with me?' Finally he is able to order his man to, 'Get rid of him.' This shows his authoritativeness because he commands others to act for him. He is the leader and he is to be obeyed.

II

Angier is shown to be *vindictive*, but only in passage 1. Angier's desire for revenge is apparent when he says that he will be 'following [Borden's] career with the greatest attention.' This has the air of a threat and suggests that Angier will seek revenge on Borden at some point in the future.

Notes:

1. **Definitions:**

   <u>authoritative:</u> having an air of power; displaying leader-like behaviour; demonstrating command or control

   <u>vindictive:</u> having desire for revenge; being spiteful; wishing evil on others

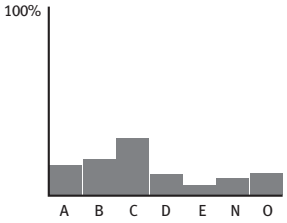
   <u>impulsive:</u> behaviour characterised by little or no forethought/reflection; acting on the spur of the moment; reacting suddenly

   <u>shrewd:</u> ability to judge people/situations well; showing astute powers of judgment; clever and judicious; having artfulness, skilfulness.

2. **Evidence may be provided through quotes, line numbers, or unambiguous paraphrasing.**
3. **For all grades, what gains credit cannot be inconsistent with the characteristic/s or with a reasonable reading of the passages.**
4. **In order to make clear that evidence supports a characteristic, the response must demonstrate an understanding of the characteristic beyond the mere use of the word.**
5. **For part II, the chosen characteristic may be circled, ticked or identified from what is written.**
6. **If more than one characteristic is discussed in part II, award the best grade possible for one characteristic.**
7. **Obvious transcription errors, e.g. minor misquoting, stating passage 1 when passage 2 was *clearly* intended, can be disregarded.**

Item 12

Commentary



Item 12 is a four-star item that tested achievement in CCEs 33 *Inferring*, 29 *Comparing, contrasting*, 26 *Explaining to others* and 48 *Justifying*.

This item required students to explain how Borden used the techniques of omission and using words and phrases that cause the reader to feel a particular way to portray himself favourably. The cue instructed students to include two separate examples for each of the techniques.

An A-grade response needed to cite two examples of omission and explain how omission is favourable to Borden and to cite two examples of effective word choice and explain how word choice is favourable to our impression of Borden.

A broad range of omissions and word choices that portrayed Borden favourably were cited, however, in some responses the examples cited were not consistent with a reasonable reading of the passages. Examples included 'cried' interpreted as Borden in tears and 'emphatically' misread to be 'empathetically'.

Students should remember when responding to this type of item to follow the cue provided and include the number of examples required. They should also read the stimulus material carefully so that pertinent words are not misread.

Model response

Borden uses two techniques to portray himself favourably in his own recount. The first technique is that he leaves out some of the events that occurred, such as the 'intense and uncontrollable grief' caused by Borden, that Angier alludes to. This omission portrays Borden as more considerate than he is. Another example of omission is that Borden leaves out part of the story where he would not admit who he was to Angier. This makes Borden appear less secretive and therefore more favourable to the audience. The second technique Borden uses is choosing words to make the audience feel a particular way. Borden makes sure that his statements are said emphatically, to show the audience that he was concerned by Angier's trickery. This is evident when he exclaims, 'This man is an imposter!' Borden also claims that Angier is a 'liar', 'cheat', and that he is using 'legedemain', a technical term to describe Angier's antics. In doing do, Borden makes the audience feel that he is the true magician and should be the one who is trusted.

UNIT EIGHT ITEM 12

Marking Scheme

PERFORMANCE DOMAIN		
	33 Inferring	26 Explaining to others
	29 Comparing, contrasting	48 Justifying

A

The response

- cites <u>two</u> examples of omission
- explains how omission is favourable to Borden
- cites <u>two</u> examples of effective word choice
- explains how word choice is favourable to Borden.

B

The response

- cites <u>two</u> examples of omission
- explains how omission is favourable to Borden
- cites <u>one</u> example of effective word choice
- explains how word choice is favourable to Borden.

OR

The response

- cites <u>one</u> example of omission
- explains how omission is favourable to Borden
- cites <u>two</u> examples of effective word choice
- explains how word choice is favourable to Borden.

OR

The response

- cites <u>two</u> examples of omission
- cites <u>two</u> examples of effective word choice
- explains how omission OR word choice is favourable to Borden.

C

The response

- cites <u>one</u> example of omission
- cites <u>one</u> example of effective word choice
- explains how omission OR word choice is favourable to Borden.

OR

The response

- cites <u>two</u> examples of omission
- explains how omission is favourable to Borden.

OR

The response

- cites <u>two</u> examples of effective word choice
- explains how word choice is favourable to Borden.

D

The response

- cites <u>one</u> example of omission
- explains how omission is favourable to Borden.

OR

The response

- cites <u>two</u> examples of omission.

OR

The response

- cites <u>one</u> example of effective word choice
- explains how word choice is favourable to Borden.

E

The response

- cites <u>one</u> example of omission.

OR

The response

- cites <u>one</u> example of word choice and proposes an effect such word choice may have.

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Model Response:

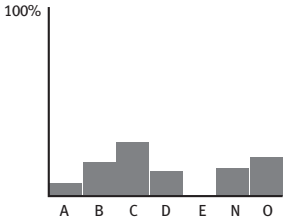
Borden uses two techniques to portray himself favourably in his own recount. The first technique is that he leaves out some of the events that occurred, such as the 'intense and uncontrollable grief' caused by Borden, that Angier alludes to. This omission portrays Borden as more considerate than he is. Another example of omission is that Borden leaves out part of the story where he would not admit who he was to Angier. This makes Borden appear less secretive and therefore more favourable to the audience. The second technique Borden uses is choosing words to make the audience feel a particular way. Borden makes sure that his statements are said emphatically, to show the audience that he was concerned by Angier's trickery. This is evident when he exclaims, 'This man is an imposter!' Borden also claims that Angier is a 'liar', 'cheat', and that he is using 'legerdemain', a technical term to describe Angier's antics. In doing so, Borden makes the audience feel that he is the true magician and should be the one who is trusted.

Notes:

1. Examples may be cited through quotes, line numbers, or unambiguous paraphrasing.
2. For all grades, what gains credit cannot be inconsistent with a reasonable reading of the passages.

Item 13

Commentary



Item 13 is a three-star item that tested achievement in CCEs 31 *Interrelating ideas*, 44 *Synthesising*, 41 *Hypothesising*, and 10 *Using vocabulary appropriate to a context*.

This item was based on the original introduction and the passages and a later statement made by Borden. It required students to state what Borden's point of view may have been at the time of the incident and to discuss how he came to realise it was hypocritical. The cue directed students to consider the introduction as well as the passages and the statement in their response.

An A-grade response needed to provide a point of view that Borden may have held at the time of the incident and show that this point of view was based on high principles. The response had to be based on the information provided and explain how his thinking changed to recognise his hypocrisy.

Some responses provided a point of view but did not indicate that this point of view was based on high principles. Responses showed that students understood the concept of hypocrisy, but the responses did not always provide enough detail to explain how Borden's thinking changed due to hypocrisy.

Students should remember to consider all aspects of the stimulus material when responding to items that involve interrelating several ideas.

Model responses

Response 1

Borden's point of view was that it is wrong for a magician to make money by deceiving people and giving them false hope. He felt so strongly about this that he was prepared to disrupt the seance. However, upon reflection, he realised that it was hypocritical of him to adhere to these high principles that he championed as a stage magician. What he did in front of an audience was no different from what Angier did in front of the family — they both used magic tricks to deceive.

Response 2

Borden's point of view was that it was wrong to use magic to fool a grieving family. He believed that a magician with integrity would not be involved in a seance. The art of magic was for the stage. Years later as he was thinking back, he realised that he was little different from Angier — they both used tricks to make their living, one on the stage and one through seances. He realised he had been hypocritical towards Angier at the time of the incident.

UNIT EIGHT ITEM 13

Marking Scheme

PERFORMANCE DOMAIN		
	31 Interrelating ideas …	41 Hypothesising
	44 Synthesising	10 Using vocabulary appropriate to a context

A

The response

- provides a point of view that Borden may have held at the time of the incident
- shows that this point of view is based on high principles
- explains how his thinking changed to recognise his hypocrisy
- is based on the information provided.

B

The response

- provides a point of view that Borden may have held at the time of the incident
- recognises that this point of view is based on high principles
- suggests how his thinking changed to recognise his hypocrisy
- is based on the information provided.

OR

The response

- provides a point of view that Borden may have held at the time of the incident
- explains how his thinking changed to recognise his hypocrisy
- is based on the information provided.

C

The response

- provides a point of view that Borden may have held at the time of the incident
- recognises that this point of view is based on high principles.

OR

The response

- provides a point of view that Borden may have held at the time of the incident
- suggests how his point of view changed.

OR

The response

- describes a feeling that Borden may have had at the time of the incident
- suggests how his thinking changed to recognise his hypocrisy.

OR

The response

- explains why Borden's thinking was hypocritical.

D

The response

- provides a point of view that Borden may have held at the time of the incident.

OR

The response

- describes a feeling that Borden may have had at the time of the incident
- outlines why this feeling changed.

N

Response is unintelligible or does not satisfy the requirements for any other grade.

O

No response has been made at any time.

Model Responses:

1. Borden's point of view was that it is wrong for a magician to make money by deceiving people and giving them false hope. He felt so strongly about this that he was prepared to disrupt the seance. However, upon reflection, he realised that it was hypocritical of him to adhere to these high principles that he championed as a stage magician. What he did in front of an audience was no different from what Angier did in front of the family — they both used magic tricks to deceive.
2. Borden's point of view was that it was wrong to use magic to fool a grieving family. He believed that a magician with integrity would not be involved in a seance. The art of magic was for the stage. Years later as he was thinking back, he realised that he was little different from Angier — they both used tricks to make their living, one on the stage and one through seances. He realised he had been hypocritical towards Angier at the time of the incident.

Notes:

1. A 'point of view' is a specific opinion, attitude or judgment made about something else. A 'feeling' is an emotion.
2. 'High principles': integrity; idealism; moral uprightness; desire for excellence/superiority; honour; decency; virtue.
3. 'Hypocrisy': behaviour that contradicts what one claims to believe or feel.
4. To recognise Borden's realisation of hypocrisy, a response must demonstrate understanding of hypocrisy beyond the mere use of the word.
5. For A-, B- and C-grades, what is credited must be plausible.

Unit Nine

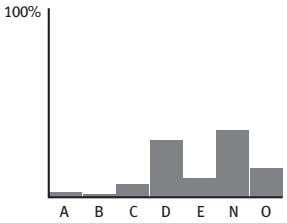
The item in this unit is based on using a rain gauge to measure rainfall.

The following table shows the percentage of responses awarded the various grades for the item in this unit.

	A	B	C	D	E	N	O
Item 14	2.4	1.1	6.6	29.9	9.7	35.4	14.9

Item 14

Commentary



Item 14 is a four-star item that tested achievement in CCEs 19 *Substituting in formula*, 51 *Identifying shapes in two and three dimensions*, 20 *Setting out/ presenting/arranging /displaying* and 44 *Synthesising*.

This item consisted of two parts. The first part required students to calculate the volume of rainfall collected if 10 mm of rain fell onto the top of the rain gauge box. The second part required students to determine how many millimetres of rain had fallen if the measuring cylinder inside the gauge was full and the rainwater had overflowed the cylinder to a depth of 4 cm in the overflow box. The cues directed students to show all steps and provide full reasoning.

An A-grade response for part I needed to provide calculations to determine the correct volume of rainwater, and for part II provide clear reasoning to determine a depth of rainfall between 61 and 62 mm inclusive.

For part I, the volume of rainwater was the amount of water in a square-based prism 10 mm high. Responses showed that the concept of measuring a three dimensional entity such as water in millimetres caused difficulties in answering this part of the item. For part II some responses showed that it was sometimes mistakenly assumed that if 25 mm of rain was given as the amount of rain which completely fills the cylinder then the cylinder must be 25 mm in height. This assumption impacted on the solution to the item.

It was made clear that the final rainfall was to be stated in millimetres. Responses in which all measurements were initially converted to millimetres usually resulted in a correct final result for the rainfall. Where an attempt was made to convert units at an intermediate stage, providing the correct rainfall was more difficult.

Students should remember that visualising shapes, areas and volumes can be demanding and they should be encouraged to draw a diagram as part of a planning process. Responses where the given diagram was annotated or where a student's own version of the gauge was included tended to make more headway towards a solution than those that contained a series of disconnected calculations.

Model responses

Response 1

I.

volume = 8.5 x 8.5 x 1.0

= 72.25 cm^3

II.

volume of full cylinder = volume when 25 mm falls on box

= 85 x 85 x 25

= 180 625

volume in overflow = $(85 \times 85 - \pi r^2) \times 40$ mm

= $(7225 - \pi 14^2) \times 40$

= 6609.2 x 40

= 264 369.9

total volume collected = 180 625 + 264 369.9

= 444 944.9

rainfall = $\frac{444\,944.9}{85^2}$

= 61.59 mm

Response 2

I.

volume = 85 x 85 x 10

= 72 250 mm^3

II.

total height of cylinder = $\frac{\text{volume of rainwater in full cylinder}}{\text{area of base}}$

= $\frac{85 \times 85 \times 25}{\pi \times 14 \times 14}$

= 293.3 mm

height of cylinder protruding above overflow = 293.3 – 40

= 253.3 mm

total volume = base volume + volume of cylinder above overflow

= $85 \times 85 \times 40 + \pi 14^2 \times 253.3$

= 444 970 mm^3

rainfall = $444\,970 \div 85^2$

= 62 mm

UNIT NINE ITEM 14

Marking Scheme

PERFORMANCE DOMAIN	19 Substituting in formulae 51 Identifying shapes in two and three dimensions 20 Setting out/presenting/arranging/displaying	44 Synthesising

A	B	C	D	E	N
The response provides for part I • calculation/s to determine the correct volume of rainwater as 72250 mm^3 or 72.25 cm^3, 0.00007225 m^3 or 72.25 mL. for part II • clear reasoning to determine a depth of rainfall between 61 and 62 mm inclusive. No incorrect calculations are used to arrive at the answer.	The response provides for part I • the correct volume of rainwater as 72250 or 72.25 or 0.00007225 m^3. for part II, allowing for at most one observable mechanical error and consequentially correct value/s, • clear reasoning to determine a total depth of rainfall in mm or cm. OR The response provides for part II • clear reasoning to determine a depth of rainfall between 61 and 62 mm inclusive. No incorrect calculations are used in the creditable part of the response.	The response provides evidence of calculation/s that could determine for part I • the required volume of rainwater for part II • a pertinent volume of rainwater. OR The response provides evidence of calculation/s that could determine for part II • the total volume of rainwater *OR* • depth of rainwater in the box after cylinder is removed. OR The response provides, based on rainwater to a depth of 10 mm in the cylinder, for part I • calculation/s to determine the correct volume of rainwater as 6.1… cm^3 or 6157.5… mm^3, 0.00000615… m^3 or 6.1… mL. for part II, allowing for at most one observable mechanical error and consequentially correct value/s, • clear reasoning and calculations to determine the total depth of rainfall (in mm).	The response provides evidence of calculation/s that could determine for part I • the required volume of rainwater. OR The response provides evidence of calculation/s that could determine for part II • a pertinent volume of rainwater. OR The response provides, based on rainwater to a depth of 10 mm in the cylinder, for part I • calculation/s to determine the correct volume of rainwater as 6.1… or 6157.5… 0.00000615… or 6.1… . for part II, allowing for at most one observable mechanical error and consequentially correct value/s, • calculations to determine the required total volume of rainwater	The response provides evidence of calculation/s that could determine for part I • the volume of rainwater to a depth of 10 mm in the cylinder.	Response is unintelligible or does not satisfy the requirements for any other grade.
					O
					No response has been made at any time.

UNIT NINE ITEM 14

Marking Scheme

Model Responses:

1.

I

volume $= 8.5 \times 8.5 \times 1.0$

$= 72.25 \text{ cm}^3$

II

volume of full cylinder = volume when 25 mm falls on box

$= 85 \times 85 \times 25$

$= 180\,625$

volume in overflow $= (85 \times 85 - \pi r^2) \times 40$ mm

$= (7225 - \pi 14^2) \times 40$

$= 6609.2 \times 40$

$= 264\,369.9$

total volume collected $= 180\,625 + 264\,369.9$

$= 444\,944.9$

rainfall $= \dfrac{444\,944.9}{85^2}$

$= 61.59$ mm

2.

I

volume $= 85 \times 85 \times 10$

$= 72\,250 \text{ mm}^3$

II

total height of cylinder $= \dfrac{\text{volume of rainwater in full cylinder}}{\text{area of base}}$

$= \dfrac{85 \times 85 \times 25}{\pi \times 14 \times 14}$

$= 293.3$ mm

height of cylinder protruding above overflow $= 293.3 - 40$

$= 253.3$ mm

total volume = base volume + volume of cylinder above overflow

$= 85 \times 85 \times 40 + \pi 14^2 \times 253.3$

$= 444\,970 \text{ mm}^3$

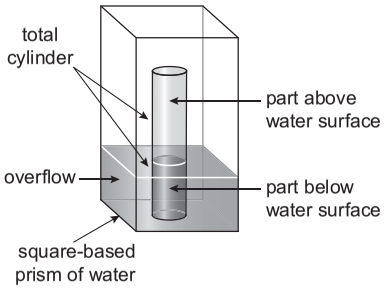
rainfall $= 444\,970 \div 85^2$

$= 62$ mm

Notes:

1. 'Observable mechanical error' means that sufficient intermediate steps are shown to indicate how an error occurred. A mechanical error is:
   - a recognisable transcription error
   - an incorrect result of a correctly-stated operation
   - inappropriate rounding
   - mismanaged units.
2. The error of using diameter instead of radius when calculating area of circle is not allowed as a mechanical error.
3. A response 'provides evidence' of a calculation when it provides mathematical statement/s identifiable as relevant to a solution.
4. Pertinent volumes are:
   - the volume of rainwater in the overflow box around the cylinder
   - the volume of rainwater to a depth of 40 mm in the overflow box
   - the volume of rainwater in the cylinder above 40 mm
   - the volume of rainwater in the cylinder below 40 mm
   - the volume of rainwater in a full cylinder.

Pertinent volumes



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