

MULTIPLE-CHOICE QUESTIONS

*To be answered on the Answer Sheet for
Multiple-Choice Questions.*

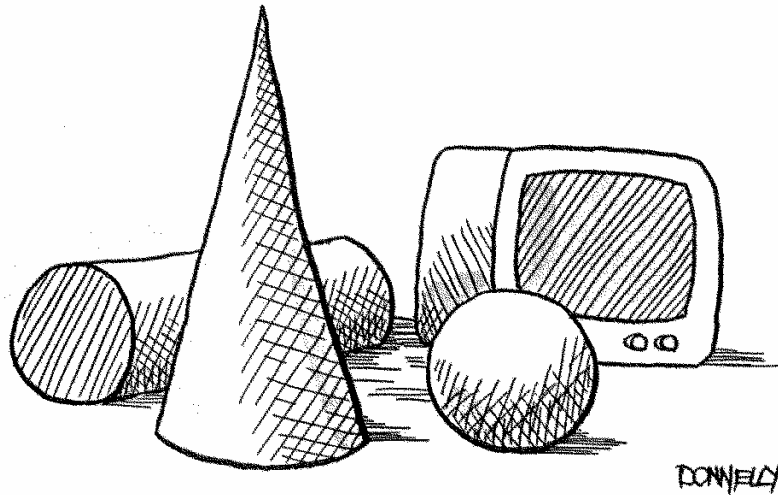
You are advised to allocate 2 hours to this task.

Choose the response that is **correct**, or that **best answers the question**, and shade the square on the answer sheet for multiple-choice questions according to the instructions on that sheet.

A correct answer is worth 1 mark, an incorrect answer is worth 0 marks. No marks will be given if more than one answer is shown for any question. Marks will **not** be deducted for incorrect answers.

UNIT 1

Question 1



The drawing above suggests that

- A geometric shapes are behind everything, even television.
- B television contrasts with other fundamentals.
- C geometric shapes are infinitely flexible.
- D television has become fundamental.

UNIT 2

Questions 2 and 3

Table 1 indicates the six sports that can be chosen by Year 8 students at Eastaway High School during each of the four terms of one year. An asterisk is used to indicate a sport that can be chosen by a student in a term.

The following rules apply when a student chooses a sport for a term:

- only one sport can be chosen each term; and
- a different sport must be taken each term (i.e. students do four sports during the year, one in each term).

Table 1

Sport	Term			
	1	2	3	4
Cricket				*
Fencing	*	*	*	*
Hockey		*		
Netball		*	*	
Swimming	*			*
Volleyball	*			*

Different *combinations* of four sports can be chosen for the year. In order of the four terms, Volleyball, Netball, Hockey and Fencing is considered to be a different combination to Fencing, Hockey, Netball and Volleyball.

Question 2

Which one of the following combinations could be chosen by a Year 8 student if the first sport named is in Term 1, the second in Term 2, and so on?

- A Fencing, Hockey, Swimming, Cricket
- B Swimming, Netball, Hockey, Fencing
- C Swimming, Netball, Fencing, Cricket
- D Volleyball, Netball, Hockey, Swimming

Question 3

Malcolm wishes to do Cricket, Hockey, Volleyball and Fencing in a particular year. He does not have to do the sports in any particular order.

According to Table 1, what is the number of possible combinations of these four sports?

- A one
- B two
- C four
- D sixteen

UNIT 3

Questions 4 – 7

The following passage and cartoon are about graffiti.

Graffiti is a crime. Graffiti is vandalism. Graffiti is not art. There can be no argument in support of vandalism. A very famous place in a very famous city had graffiti-style paintings painted on the outside. Now the community near this business is a 'sewer' of graffiti vandalism.

Why is graffiti such an issue? Graffiti is in vogue¹ within a small subculture of vandals who are unfortunately having a major impact on the overall quality of life within our communities. Those communities that never had a graffiti problem suddenly do. Cities that had a small problem suddenly have a major problem. Graffiti is invading places and communities where we as civilised persons thought it would never take hold.

Graffiti advocates believe graffiti is a right, and that the property rights of the victim do not apply in any argument against graffiti. They feel graffiti is an acceptable form of self-expression that the rest of the world is just too stupid to accept.

¹ in vogue: popular



Question 4

The first three sentences of the passage aim to

- A attack those who approve of graffiti.
- B make a definite judgment about graffiti.
- C state claims for and against graffiti as an art form.
- D condemn the authorities for not doing more to deter graffiti artists.

Question 5

In the passage graffiti is depicted as

- A a widespread, evil presence.
- B an acceptable form of self-expression.
- C confined to the less attractive areas of cities.
- D acceptable if it is confined to designated surfaces.

Question 6

The passage suggests that

- A graffitiists are stupid.
- B supporters of graffitiists are stupid.
- C authorities are stupid in that they do little to curb graffiti.
- D graffitiists view as stupid those who do not accept their art.

Question 7

The cartoon

- A reinforces the ideas conveyed in the passage.
- B contradicts the ideas conveyed in the passage.
- C offers a solution to the problems referred to in the passage.
- D offers an alternative view of graffiti to that of the passage.

UNIT 4

Questions 8 and 9

Building of the bell tower now known as the Leaning Tower of Pisa was started in 1174. From that time, because one side was built on soft ground, the tower started tilting to the north.

Figure 1 shows the angle at which the tower had tilted from the vertical from 1174 until 1980.

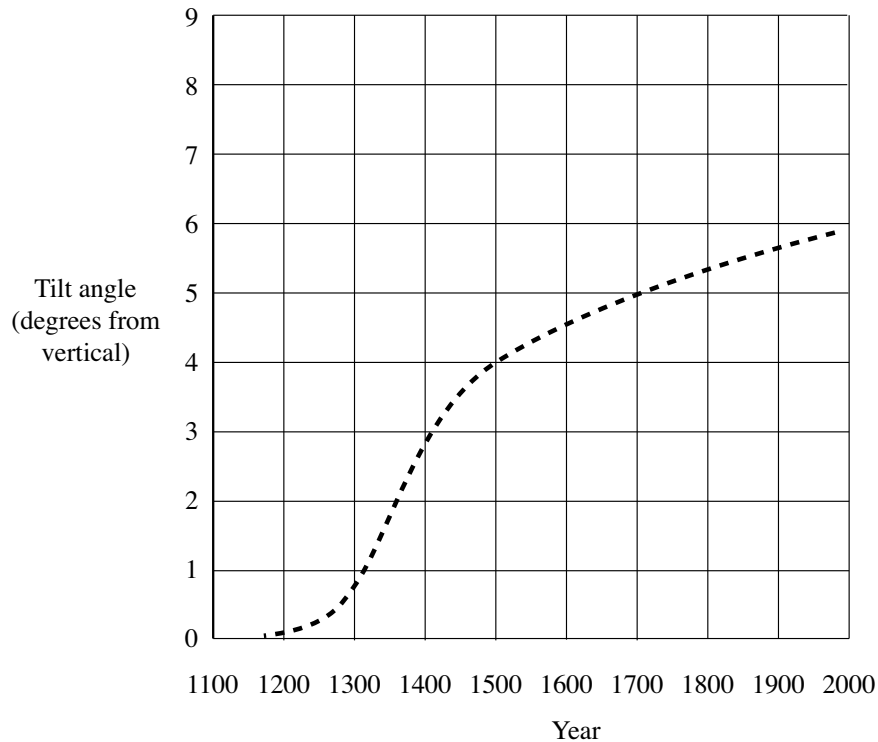


Figure 1

Question 8

During which of the following periods did the tower tilt angle increase at the fastest rate?

- A between 1200 and 1250
- B between 1300 and 1350
- C between 1400 and 1450
- D between 1450 and 1500

Question 9

Assume the tower will fall if it tilts more than 8.0° .

Suppose that from 1980 it tilts at the average rate it did from 1700 to 1980.

Which one of the following is the best estimate of when it will fall?

- A the year 2500
- B the year 3500
- C the year 4500
- D the year 5500

UNIT 5

Questions 10 and 11

Figure 1 compares the contents of eggs from three types of bird.

An *altricial* bird emerges from the egg poorly developed, blind and featherless, and unable to feed itself. A *precocial* bird emerges from the egg covered in small feathers and ready to feed itself, but needing some parental help. A *kiwi* bird emerges from the egg more developed than a precocial bird, in that it is fully feathered and requires no food from its parents, and little support.

Albumen is the clear part of the egg (or white part when cooked) and *yolk* is the yellow part.

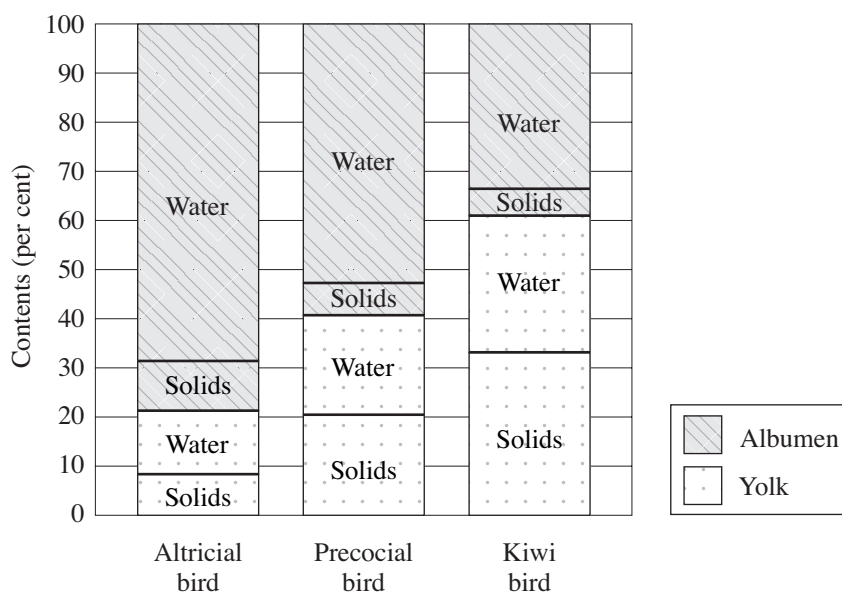


Figure 1

Question 10

For eggs of equal weight, which of the three types of bird has the most water in its yolk?

- A altricial
- B precocial
- C kiwi
- D There is insufficient information provided to answer this question.

Question 11

Which of the following hypotheses is most strongly supported by the data provided?

The more developed and independent a bird is when it emerges from the egg, the

- A greater the percentage of the egg contents that is albumen.
- B greater the percentage of the egg contents that is yolk.
- C lower the percentage of the albumen that is water.
- D lower the percentage of the yolk that is solids.

UNIT 6**Questions 12 – 15**

Questions 12 – 15 are from a debate for and against the topic:

Violent TV and videos contribute to real-life violence.

For each of the questions you are to choose the alternative (**A – D**) that most appropriately describes the relationship of the statement to the topic of the debate.

The statement:

- A** is most likely part of the debate **for** the topic.
- B** is most likely part of the debate **against** the topic.
- C** could possibly be part of the debate **for or against** the topic.
- D** is **not relevant** to either the debate for or against the topic.

Question 12

People easily separate fantasy from reality.

Question 13

Violence is never an acceptable course of action.

Question 14

Violent entertainment desensitises viewers.

Question 15

The accessibility and the graphic impact of TV make it an especially powerful medium.

UNIT 7**Question 16**

‘There’s no fool like an old fool.’

This proverb suggests that

- A** if you are old you must be a fool.
- B** if you are old, then you cannot be a fool.
- C** people get more foolish as they grow older.
- D** you are especially foolish if you are old and foolish.

UNIT 8

Questions 17 – 19

When writing a date in computer programs, the four spaces needed to write the year can be represented by the symbols YYYY, the two spaces for a month by MM and the two spaces for the day by DD. Three different formats are used to write the date as follows:

♦ American format	MMDDYYYY
♦ English format	DDMMYYYY
♦ European format	YYYYMMDD

For example, the day astronaut Neil Armstrong landed on the moon, the 20th day of July 1969, would be written as 20071969 in the English format but as 07201969 in the American format.

Note

- In all three formats, eight spaces are needed to write a date.
- The use of the same symbol in the spaces does not mean that the same numeral is used — the letters are just to indicate the number of spaces needed.
- For the first nine months or days, a zero must be written for the first M or D.
- There are 12 months in a year and up to 31 days in a month.

Question 17

Which one of the following dates is sensible only in the European format?

- | | |
|------------|------------|
| A 20022002 | C 20202002 |
| B 20022020 | D 20200202 |

Questions 18 and 19 refer to the following additional information:

In the following questions, the year can be any year from 1900 to 2999 inclusive.

Question 18

If the numeral 2 is in the fifth space (from the left), the format used

- A must be the English format.
- B must be the European format.
- C could be either the American format or the English format.
- D could be any of the three formats.

Question 19

The only numeral, or numerals, that can appear in any of the eight spaces

- | | |
|----------|-----------------|
| A is 0 . | C are 0 and 1 . |
| B is 1 . | D are 1 and 2 . |

UNIT 9

Questions 20 – 24

In the following text a critic discusses the television cartoon sitcom ‘The Simpsons’¹.

The Simpsons subverts and critiques traditional sitcom notions such as the ‘warm moment,’ wherein everyone embraces, all problems are (re)solved and we learn a valuable moral lesson. This is most emphatically displayed in the episode titled ‘Blood Feud,’ in which Bart donates blood to save the life of Homer’s boss, Mr. Burns. Hoping to ingratiate himself, and thereby receive a generous reward, Homer forces Bart to donate. When the family receives nothing more than a ‘thank you,’ Homer dashes off a sarcastic note, thus reaping the ire of Mr. Burns, who immediately decides to have Homer killed. But Burns has a change of heart and decides to give the Simpsons a gift after all: a stone head, an ancient Olmec Indian carving so large it completely fills their living room. With the Simpsons gathered round the head, staring at it, eating dinner on trays, this episode denies us closure and any sense of a lesson by self-consciously ending with a debate on the moral of the show:

Marge:	The moral of this story is ‘A good deed is its own reward.’	
Bart:	Hey, we got a reward. The head is cool!	15
Marge:	Well, then, I guess the moral is ‘No good deed goes unrewarded.’	
Homer:	Wait a minute. If I hadn’t written that nasty letter, we wouldn’t have gotten anything.	
Marge:	Well, I guess the moral is ‘The squeaky wheel gets the grease.’	20
Lisa:	Perhaps there is no moral to this story.	
Homer:	Exactly. It’s just a bunch of stuff that happened.	

¹ The Simpsons are: Homer (father), Marge (mother), Bart (son), Lisa (daughter) and Maggie (baby daughter).

Question 20

Homer makes Bart donate blood

- A** as a moral act.
- B** to get a reward.
- C** to discipline Bart.
- D** to create a warm moment.

Question 21

Mr Burns' gift to the Simpsons is

- A a self-conscious moment.
- B a kind of warm moment.
- C most appropriate.
- D inappropriate.

Question 22

The writer suggests the episode ends 'self-consciously' (lines 12 and 13) because

- A it is a warm moment.
- B there is debate about a moral.
- C a range of things have happened.
- D it is not 'just a bunch of stuff that happened'.

Question 23

Homer's comment in lines 18 and 19

- A supports Marge's second moral.
- B contradicts Marge's second moral.
- C shows he does not understand what she means.
- D shows he would like to have done things differently.

Question 24

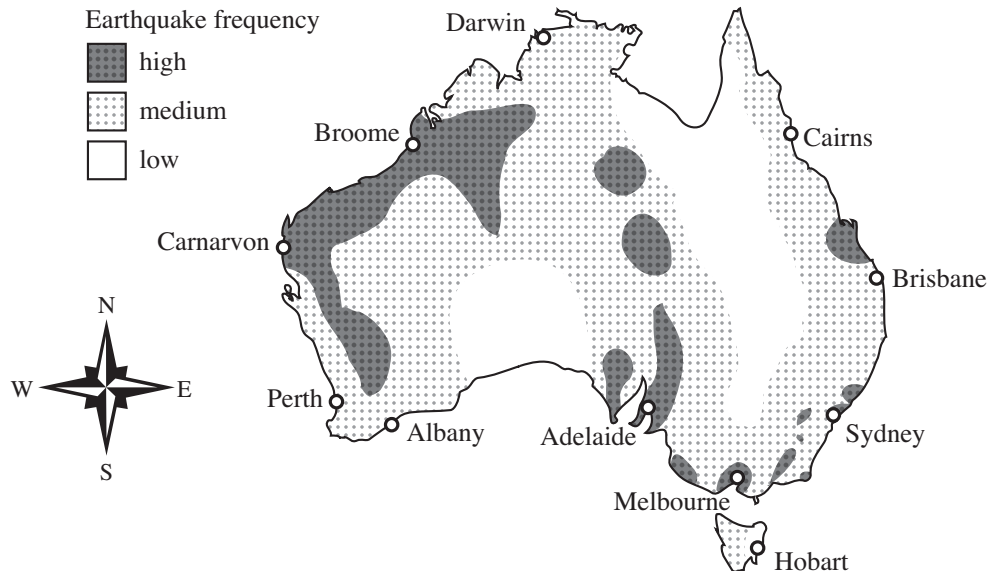
Marge's third moral (line 20) suggests that

- A Homer was rewarded because he was sarcastic.
- B Bart was rewarded because he did the right thing.
- C Bart would have got a better gift if he had been polite.
- D Homer would have got a better gift if he had been polite.

UNIT 10

Questions 25 and 26

The figure indicates earthquake frequency in Australia.



Question 25

Which one of the following statements is best supported by the information provided?

- A Most earthquakes occur along the Australian coast.
- B Each year more earthquakes occur in the eastern half than the western half of Australia.
- C It is possible to cross mainland Australia from the east coast to the west coast while remaining in areas of low earthquake frequency.
- D It is possible to cross mainland Australia from the north coast to the south coast while remaining in areas of medium earthquake frequency.

Question 26

A typical strong earthquake (magnitude 6 on the Richter scale) moves land on one side of a fault line (a weakness in the Earth's crust) upward by one metre.

The Otway Ranges in Victoria have been lifted 250 metres in three million years.

Suppose the lifting had been caused only by magnitude 6 earthquakes.

On average, which one of the following is the best estimate of how often the magnitude 6 earthquakes would have occurred?

- A once every 5000 years
- B once every 10 000 years
- C once every 50 000 years
- D once every 100 000 years

UNIT 11

Question 27



This cartoon suggests that

- A we must be our own heroes.
- B others do not recognise our heroism.
- C the individual is never the centre of things.
- D individuals can be isolated even in crowds.

UNIT 12

Questions 28 – 31

The water storages for Pleasant City have a total capacity of 1800 gigitalitres*. The monthly average rainfall in the area of the storages is greater for October, November and December than for each of the other months. January, February and March are hot and dry.

Water storage levels are monitored closely. Figure 1 shows the water storage levels at which restrictions on water use will be imposed (*trigger levels*). There are four stages of restrictions ranging from Stage I (least severe) to Stage IV (most severe).

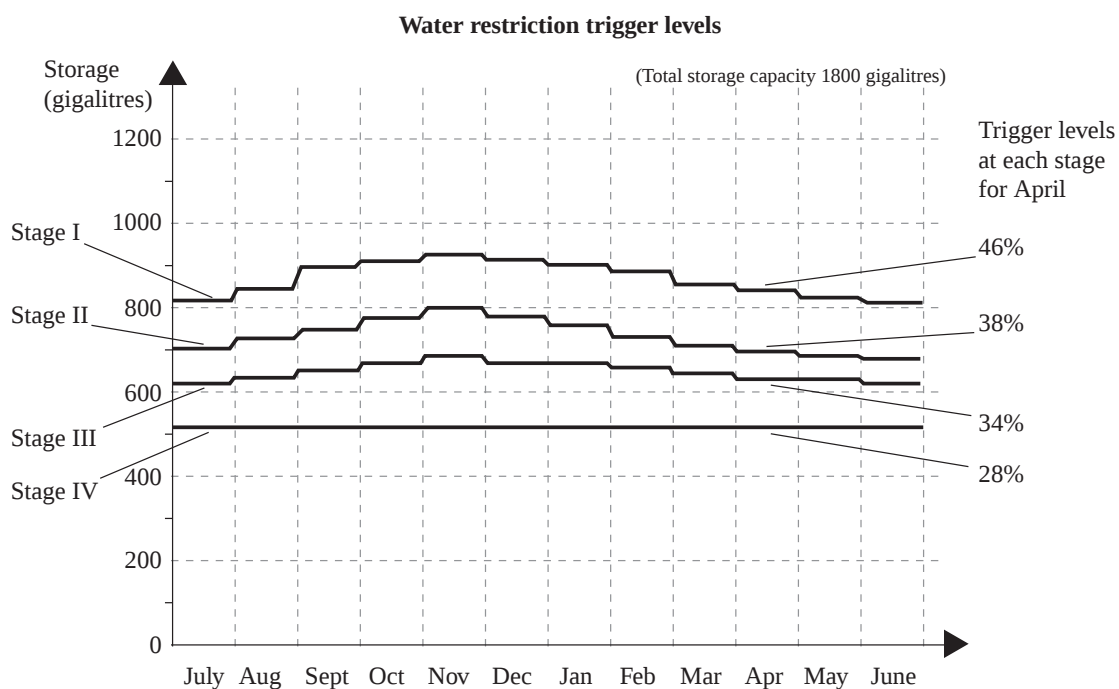


Figure 1

* One gigitalitre equals one thousand million litres.

Question 28

Which one of the following is the best estimate of the water storage level at which Stage I restrictions would be introduced in November?

- A 800 gigitalitres
- B 860 gigitalitres
- C 930 gigitalitres
- D 1000 gigitalitres

Question 29

Which one of the following is the best estimate of the amount of water in the storages when the most severe restrictions are imposed?

- A 200 gegalitres
- B 520 gegalitres
- C 640 gegalitres
- D 820 gegalitres

Question 30

Which one of the following best describes the conditions when water restrictions are introduced?

- A When the rainfall for a month is below the average annual rainfall.
- B When the rainfall for a particular month is less than the average for that month.
- C When the total water storage in a month drops to the trigger level for that month.
- D When the level of water use in a month exceeds the amount allowed for that month.

Question 31

The highest trigger point for water restrictions is in November.

Which one of the following is the best reason for this?

- A It is expected that less water will be used in November and December than any other time.
- B The storages need to be at their highest possible level by this time of the year.
- C People expect water restrictions to begin at the start of the hot weather.
- D The storages usually have the least water at this stage of the year.

UNIT 13

Questions 32 – 35

Solitude

Right here I was nearly killed one night in February.
My car slewed on the ice, sideways,
into the other lane. The oncoming cars —
their headlights — came nearer.

My name, my daughters, my job 5
slipped free and fell behind silently,
farther and farther back. I was anonymous,
like a schoolboy in a lot surrounded by enemies.

The approaching traffic had powerful lights. 10
They shone on me while I turned and turned
the wheel in a transparent fear that moved like eggwhite.
The seconds lengthened out — making more room —
they grew long as hospital buildings.

It felt as if you could just take it easy 15
and loaf a bit
before the smash came.

Then firm land appeared: a helping sandgrain
or a marvellous gust of wind. The car took hold
and fish-tailed back across the road.
A signpost shot up, snapped off — a ringing sound — 20
tossed into the dark.

Came all quiet. I sat in my seatbelt
and watched someone tramp through the blowing snow
to see what had become of me.

Tomas Tranströmer
(translated from the Swedish by Robert Bly)

Question 32

The speaker's tone in the opening line is

- A relieved, because the ordeal is over.
- B delighted, that he survived the accident.
- C cautious, because he does not want to shock the reader.
- D direct, because he wishes to alert the reader to his experience.

Question 33

The speaker mentions his 'name', his 'daughters' and his 'job' in order to

- A stress the feeling of a life unfinished.
- B identify himself at the time of the accident.
- C show how his individual identity disappears in an instant.
- D emphasise that such things are important in times of crisis.

Question 34

Lines 9 – 13 convey a sense of

- A urgent action.
- B protracted time.
- C increasing hysteria.
- D impending disaster.

Question 35

In the poem there is a sense of contrast between the

- A panic of the driver and the calm of the rescuer.
- B distress experienced by the driver and his relief at being rescued.
- C horror of the crash and the emotional consequences of its aftermath.
- D physical experience of the car crash and the detached account of the driver.

UNIT 14

Questions 36 – 39

Small airborne particles of many materials float in the air and enter the nose, throat and lungs.

- Airborne particles greater than 10 micrometres across are deposited in *mucus coating the nose and throat*.
- Airborne particles 4 to 10 micrometres across are trapped in *mucus coating the airways of the lungs*.
- Airborne particles less than 4 micrometres across can reach the *gas exchange surfaces in the lungs* and can cause inflammation. People with heart disease or lung disease are most affected by this inflammation.

Figure 1 shows the size ranges of some naturally occurring airborne particles and some that result from human activity.

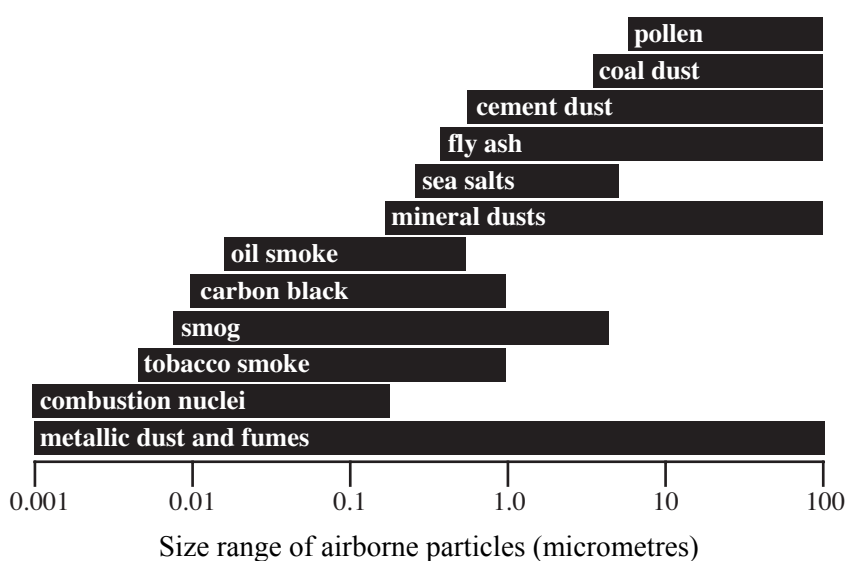


Figure 1

Question 36

Which one of the following is most likely to be found (e.g. deposited or trapped) in all three areas (nose and throat, airways of the lungs, and gas exchange surfaces in the lungs)?

- | | |
|----------|---------------|
| A pollen | C sea salts |
| B smog | D cement dust |

Question 37

Which one of the following statements is most strongly supported by the information provided?

- A There is about twice as much cement dust as pollen in the air.
- B All types of combustion nuclei can reach the gas exchange surfaces of the lungs.
- C Half of all mineral dust particles would reach the gas exchange surfaces of the lungs.
- D Small amounts of all airborne particles are likely to reach the gas exchange surfaces of the lungs.

Questions 38 and 39 refer to the following additional information:

Figure 2 shows the amount (mass) of certain airborne particles in the atmosphere that come from different sources. *Secondary particulates* are formed from gases in the air and are usually less than 10 micrometres across.

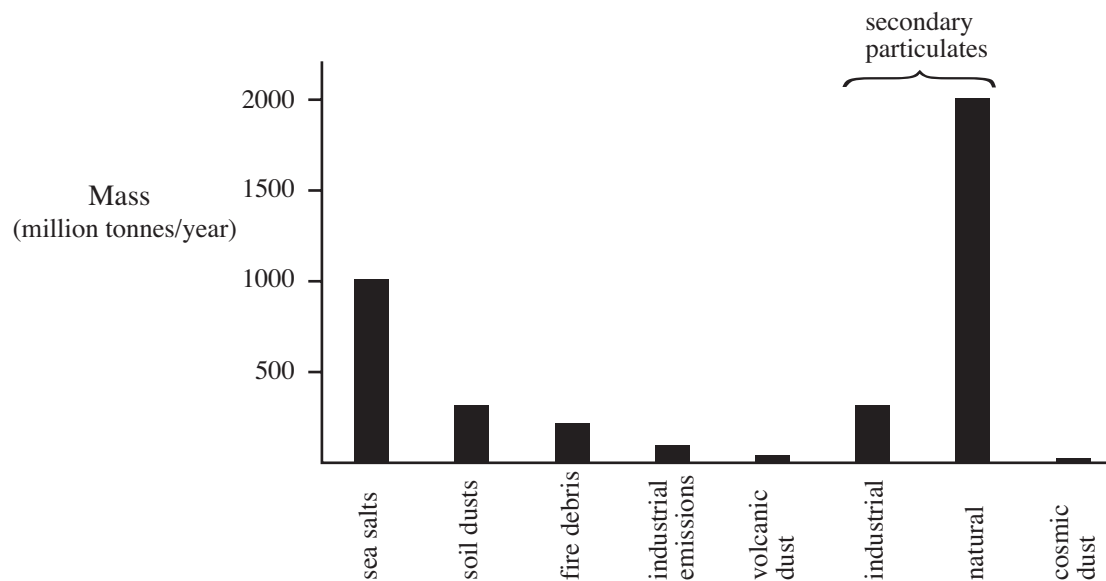


Figure 2

Question 38

Which one of the following is represented in some way in Figure 1 but is **not** represented in some way in Figure 2?

- A pollen
- B sea salts
- C industrial emissions
- D secondary particulates

Question 39

Which one of the following conclusions is the most reasonable given the information provided?

- A Secondary particulates would not reach the gas exchange surfaces of the lungs.
- B Health is more affected by the amount (mass) of a particle type in the air than its size.
- C Sea salts and soil dusts are a greater threat to human health than secondary particulates.
- D Natural secondary particulates cause more disease of the airways of the lungs than industrial secondary particulates.

UNIT 15**Questions 40 and 41**

The following quotations all refer to spider-webs.

- I** ‘The means to gain happiness is to throw out from oneself like a spider in all directions an adhesive web of love, and to catch in it all that comes.’

Leo Tolstoy

- II** ‘Experience is never limited, and it is never complete; it is an immense sensibility, a kind of huge spider-web of the finest silken threads suspended in the chamber of consciousness, and catching every air-borne particle in its tissue.’

Henry James

- III** ‘The artist is a receptacle for emotions that come from all over the place: from the sky, from the earth, from a scrap of paper, from a passing shape, from a spider’s web.’

Pablo Picasso

- IV** ‘Fiction is like a spider’s web, attached ever so lightly perhaps, but still attached to life at all four corners. Often the attachment is scarcely perceptible.’

Virginia Woolf

Question 40

Which two quotations focus on similar aspects of the spider-web?

- A** Quotations I and II
- B** Quotations II and III
- C** Quotations III and IV
- D** Quotations IV and I

Question 41

Which one of the quotations recommends a course of action?

- A** Quotation I
- B** Quotation II
- C** Quotation III
- D** Quotation IV

UNIT 16

Questions 42 and 43

Kim makes a toy by attaching two pieces of cardboard with drawings on them to a pencil as indicated in Figure 1. The drawings are shown in Figure 1(a) and (b). Kim asks Wendy and Callum to stand a couple of metres apart, while Kim stands between them and rolls the pencil rapidly between the palms of her hands, as illustrated in Figure 1(c). Figure 1(d) shows what Wendy sees from her side when the pencil is rolled rapidly, with the fish facing towards Wendy's left.

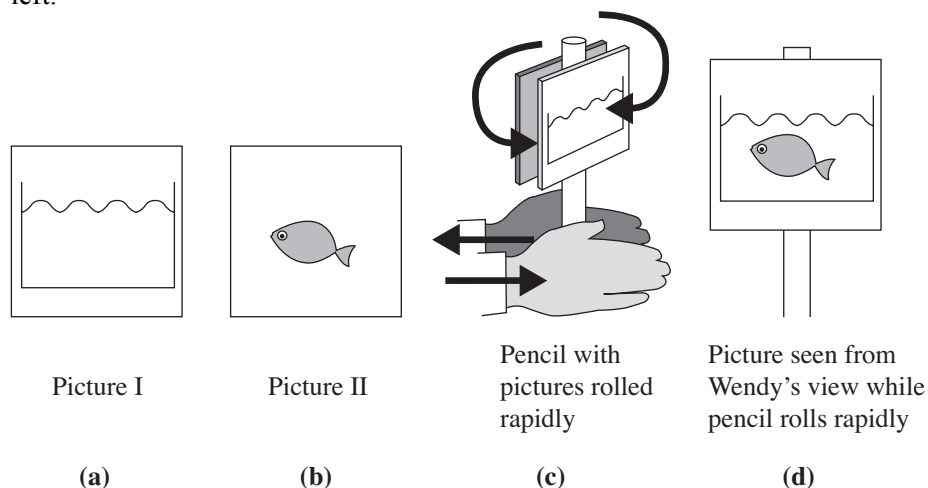


Figure 1

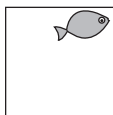
Question 42

What does Callum see from his side (opposite Wendy) when the pencil is rolled rapidly?

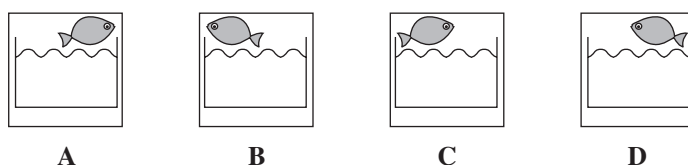
- A The fish will be seen alternately in the tank and outside it.
- B The fish will face in one direction then the other.
- C The fish will face towards Callum's right.
- D The fish will face towards Callum's left.

Question 43

Suppose that this picture is used instead of Picture II.



What would Wendy see when the pencil is rolled rapidly?



UNIT 17

Questions 44 – 48

The following passage is from an Australian novel set in the 1990s. The speaker, Cecily, is a university student and she remembers the one meeting between her boyfriend, Wil, and her mother. Cecily, Wil and some other friends were preparing at that time for an overseas trip.

I could almost see Mum approving Wil's approving. Sometimes I feel those two have me caught in a pincer movement. There's no doubt that they liked each other. They met only once, but she seemed to like him spontaneously, as well as doing her maddening assessment act on him and telling me afterwards that he had a well-shaped head, and well-set ears, and candid eyes and so on.

5

'What are his parents like?' she asked.

'Look, Mum,' I said, with my parody of patience. 'Wil and I are friends, right? We're not about to get married or anything.'

'You're about to travel together.'

'Yes, that's right, Mum. And there will be six of us, remember?'

10

'Please Cecily,' she said, 'not the teenage soapie style again.'

About a year before this, we had had a showdown, a really intense quarrel, about the way I treated her with false patience, with soft hopeless sighs and half-hidden smiles. She had made me admit the injustice of this standardised style. I had realised its insultiness, also (her words) its imaginative poverty, and had tried to abandon it. But I must have needed it, or felt I did, because I would still fall into it when I felt defensive, or anxious about her opinion.

15

So I said patiently, 'But Mum, what does it matter what his parents are like?'

'You've met them?'

'Once.'

20

'Please give me your impressions.'

'But why? Why?'

'Oh, be generous.'

So, struggling against the soap, I told her I liked Wil's parents, then, after more interrogation on her part, and more or less soap on mine, I told her they had been late-sixties drop-outs. At first I made them out to be hippies, because it was easier (soapier) but then explained that they had adopted a frugal and self-reliant rural lifestyle in revolt against consumerism and all that. (I knew this would please her because she was so frugal herself, not only from necessity, but as a principle.) But, I told her, the economics of the thing meant that they would do an injustice to their clever children, and so they had climbed painfully into society again, and were still paying off a newsagency. I told her that Wil admired them for that, since they had never lost their early ideals, and still spoke with longing of that time.

25

30

Question 44

Cecily finds her mother's 'assessment act' (line 4) 'maddening' because it is

- A foolish.
- B calculated.
- C spontaneous.
- D uninterested.

Question 45

Cecily's mother sees the response

‘And there will be six of us, remember?’ (line 10)

as

- A blunt and coarse.
- B difficult to challenge.
- C evasive and insincere.
- D embarrassing and improper.

Question 46

Cecily's mother sees the ‘standardised style’ (line 14) as

- A elegantly refined.
- B insecure and anxious.
- C unjustified condescension.
- D aggressive and confrontational.

Question 47

Wil's parents were ‘frugal and self-reliant’ (lines 27 – 28) because they

- A were used to such a lifestyle.
- B needed to be in order to succeed.
- C had not succeeded economically.
- D had rejected the normal economy.

Question 48

Wil admires his parents because they

- A gave up their principles.
- B sacrificed for their children.
- C provided well for their children.
- D encouraged their children to be clever.

UNIT 18

Questions 49 – 51

Alto High School has a junior school and a senior school on the same campus. The two schools use different timetables. The figure gives the timetable for Mondays. The starting times for the junior school and the senior school are different, but each has six periods (1 to 6).

The school has only one music teacher, who must work in both the junior school and the senior school. She must have a full lunch break and full recess break. However, these can be either the junior or senior school breaks. (She can have a recess break at one school and a lunch break at the other.)

In the following, for example, 1(J) indicates period 1 in the junior school, and 6(S) indicates period 6 in the senior school.

Time	Junior school	Senior school
8:30		
8:50		1
9:10		
9:30	1	2
9:50		
10:10	2	assembly
10:30		
10:50	recess	recess
11:10		
11:30	3	3
11:50		
12:10	4	4
12:30		
12:50		lunch
1:10	lunch	
1:30		5
1:50		
2:10	5	6
2:30		
2:50	6	
3:10		
3:30		

Question 49

On a Monday, the music teacher is required to teach two periods in the junior school and three periods in the senior school.

Which one of the following is possible according to the rules?

- A** 2(J), 3(S), 4(J), 5(S), 6(S)
- B** 2(S), 3(J), 4(J), 5(S), 6(S)
- C** 1(S), 2(S), 3(J), 4(J), 6(S)
- D** None of the above is possible.

Question 50

Suppose one Monday the entire junior school has Sport timetabled in period 5, and the entire senior school has Sport timetabled in period 2 and Drama in period 3.

Without being able to use these periods, the music teacher is to teach two periods in the junior school and three periods in the senior school.

Which one of the following is possible according to the rules?

- A** 1(S), 2(J), 3(J), 5(S), 6(S)
- B** 1(S), 2(J), 3(J), 4(J), 5(S)
- C** 1(J), 3(S), 4(S), 5(S), 6(J)
- D** None of the above is possible.

Question 51

Suppose one Monday the music teacher must attend the senior school assembly.

The teacher is also asked to teach two lessons in the senior school and four lessons in the junior school.

Is this possible according to the rules?

- A** Yes, if she teaches all the senior school lessons after all the junior school lessons.
- B** Yes, if she teaches all the junior school lessons after all the senior school lessons.
- C** Yes, but only if she alternates senior school lessons with junior school lessons.
- D** No, this is not possible.

UNIT 19

Questions 52 – 55

The distance of a place on the Earth's surface from the Equator is indicated by its *latitude*. The further a place is from the Equator, the larger the value of its latitude. All places on the Equator are at a latitude of 0° .

The graph lines in Figure 1 indicate, over a year, the local times when *daylight* begins at places whose latitudes lie in a range *from* the Equator *to* 45° south of the Equator (i.e. 45° S).

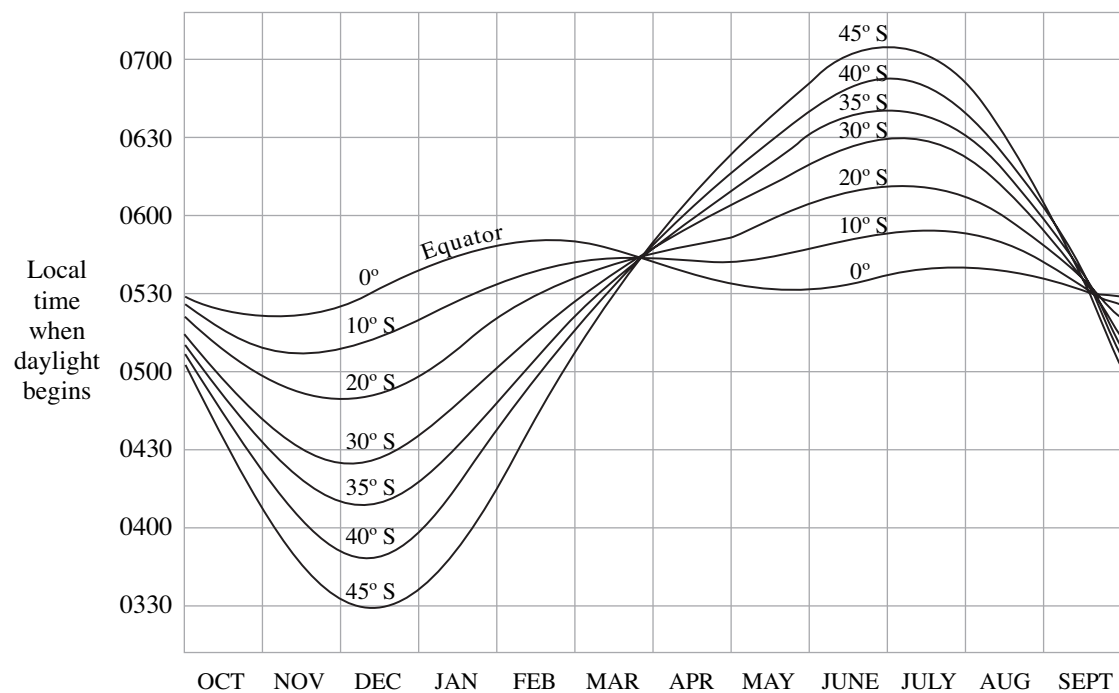


Figure 1

Question 52

For June 1, consider a place that is 20° S of the Equator.

Between which of the following local times does daylight begin at that place?

- A 0600 and 0615
- B 0615 and 0630
- C 0630 and 0645
- D 0645 and 0700

Question 53

On which one of the following dates is there the greatest difference between the local times when daylight begins at places on the Equator and places at 45° S?

- A December 15
- B March 25
- C June 15
- D June 30

Question 54

At 45° S, which one of the following is the best estimate of how much the start of daylight varies through the year?

- A 1.5 hours
- B 2.0 hours
- C 3.0 hours
- D 3.5 hours

Question 55

For which one of the following statements does the information provided give most support?

- A Throughout the year, the further south, the earlier daylight begins.
- B Daylight begins at the same time in all places on three days of the year.
- C The time when daylight starts varies least for places nearest the Equator.
- D At places where daylight begins earlier in December, it also begins earlier in June.

UNIT 20

Questions 56 – 61

The following text and diagrams come from a book about handweaving.

Handweavers who want to dye their own yarns (threads used for knitting and weaving) need only to purchase three colours — a red, a blue and a yellow. For a simple understanding and a practical use of colour, some diagrammatic references to colour harmonies are called for.

Figure 1 takes the three primary colours (red, blue and yellow), and mixes them to form secondary colours (green, orange and purple), with mid-centre grey being a combination of the three primary colours. Looking at the crossing circles we see:

yellow and blue	=	green
yellow and red	=	orange
red and blue	=	purple

Greys can be obtained by mixing complementary colours:

red and green	=	grey
yellow and purple	=	grey
blue and orange	=	grey

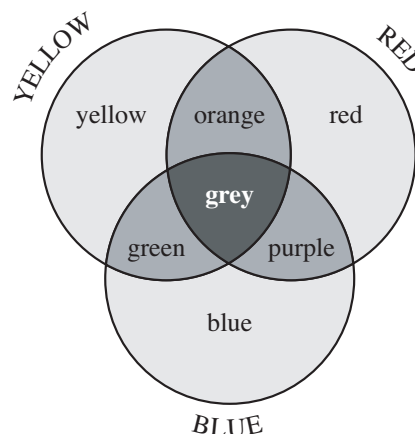


Figure 1 Primary colours and secondary colours

In Figure 1 the mid-centre grey is a combination of all three primary colours.

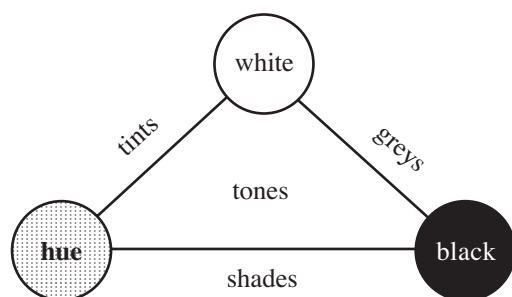


Figure 2 The 'triangle' method

Figure 2 shows the 'triangle' method of explaining depths of colour. In this value triangle, *hue* is any colour of full intensity or saturation, white is at the apex, black is at the base. Between black and white are the grey gradations; *tints* are the mixtures of the colour with white, and lie between the hue and white; *shades* are mixtures of the hue with black; *tones* inside the triangle give the intensity of the hue.

Some colourists use the 'egg' shape, Figure 3, to show the infinite depth of shading colours. The medium depth circle lies near the middle section of the egg. Just as there are various shades of grey, so there are various shades recognised as white; blacks can be reddish, greenish or blueish black. Thus it is obvious that all colours have numerous shades going up to white and down to black.

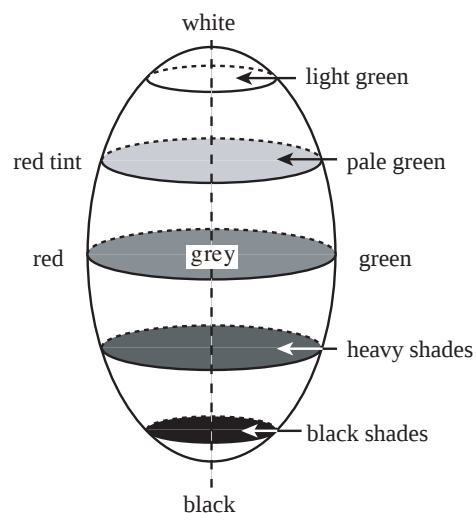


Figure 3 The 'egg' method

Question 56

Figure 1 shows the relationship between three primary colours as the basis of the

- A formation of all other colours.
- B relationship between hue and tint.
- C use of chemical but not natural dyes.
- D application of handweaving principles.

Question 57

In Figure 2, which one of the following terms is used to indicate depth of colour?

- | | |
|--------|---------|
| A hue | C tone |
| B tint | D shade |

Question 58

On the 'triangle' method diagram (Figure 2), a pink colour made up of red and white would be placed

- | | |
|------------------------|-------------------------|
| A in the hue circle. | C in the tone triangle. |
| B along the tint line. | D along the shade line. |

Question 59

Which one of the following is an accurate comment about the grey in Figure 1 compared with the grey in Figure 3?

- A Both grey colours are formed by a combination of black and white.
- B The intensity of the grey in Figure 3 is stronger than the intensity of the grey in Figure 1.
- C Figure 1 grey is formed by mixing secondary colours, while Figure 3 grey is a hue formed by mixing primary colours.
- D Figure 1 grey is formed by mixing primary or secondary colours, while Figure 3 grey is formed by mixing complementary colours or black and white.

Question 60

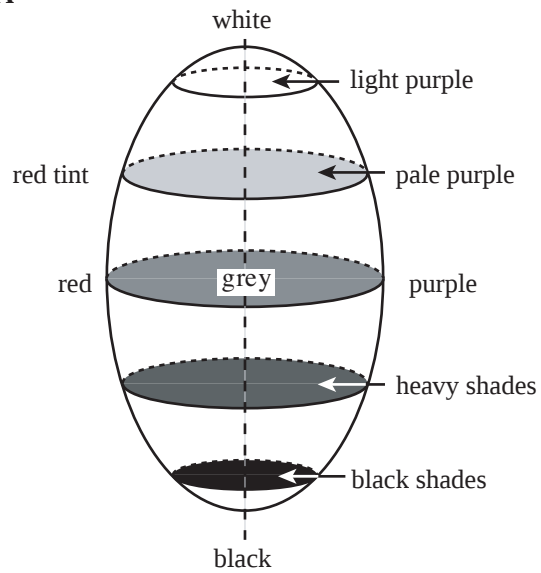
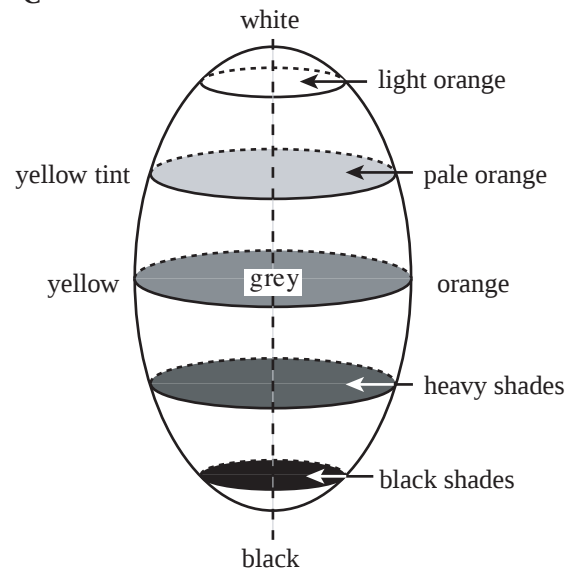
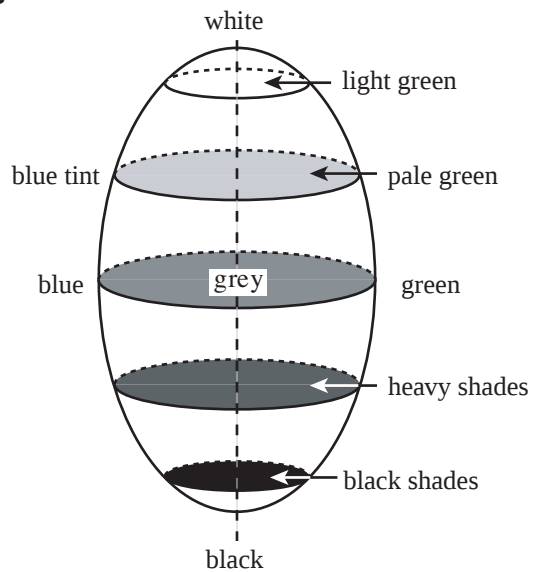
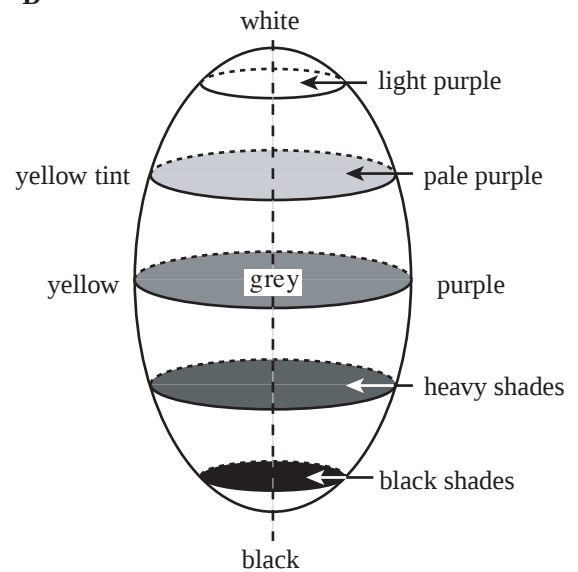
The 'egg' representation (Figure 3) always has the black/white dimension running through the centre and a colour on either side.

Which one of the following statements about these two colours is true?

- A The colours must be red and green.
- B The colours must be two primary colours.
- C The colours must be two secondary colours.
- D The colours must be two complementary colours.

Question 61

Which one of the following diagrams would be an accurate alternative to the Figure 3 egg?

A**C****B****D**

UNIT 21

Questions 62 and 63

In one country, a tax is charged on the purchase of land according to the amount paid for the land as follows:

Land Price	Tax
up to and including \$100 000	\$2000
above \$100 000 up to and including \$800 000	\$2000 plus 5% of the amount above \$100 000
above \$800 000	\$37 000 plus 1% of the amount above \$800 000

For example, if \$120 000 is paid for a property, the tax will be

$$\$2000 + [5\% \text{ of } \$20\,000] = \$3000$$

Question 62

What is the tax on a piece of land for which \$200 000 is paid?

- A \$5000
- B \$7000
- C \$10 000
- D \$12 000

Question 63

Basil paid \$10 000 tax on a piece of land.

How much did he pay for the land?

- A \$200 000
- B \$240 000
- C \$260 000
- D \$320 000

UNIT 22

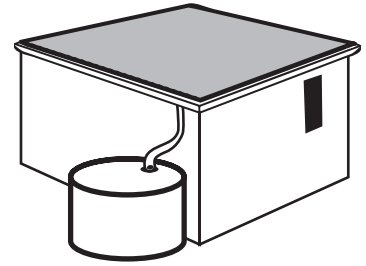
Questions 64 – 66

Raelene and Trent are planning to install a tank to collect the rainwater that falls on the roof of their garden shed.

The roof measures 10 metres by 5 metres.

Note that rainfall of 1 millimetre (mm) produces 1 litre (L) of water per square metre of roof, which flows into the tank.

1000 litres = 1 cubic metre



Assume:

- the roof is flat and horizontal, and rain falls vertically
- all water that falls on a roof flows via the gutters and downpipe into the tank
- no evaporation of water or other form of water loss occurs
- the tank is covered so that only rainwater from the roof enters it

Question 64

Suppose 25 mm of rain falls on the roof.

What volume is this equivalent to?

- | | |
|------------------------|-----------------------|
| A 1.0 cubic metre | C 2.0 cubic metres |
| B 1.25 cubic metres | D 2.5 cubic metres |

Questions 65 and 66 refer to the following additional information:

Suppose that a cylindrical tank is used to store the water. The volume of a cylinder is given by $\pi r^2 h$, where r is the radius, h is the height and $\pi = 3.14$ (approximately). Assume that volume and capacity are close enough to be equal.

Question 65

Which one of the following is the best estimate of the capacity of a cylindrical tank with a radius of 3 metres and a height of 3 metres?

- | | |
|----------------------|-----------------------|
| A 40 cubic metres | C 80 cubic metres |
| B 60 cubic metres | D 100 cubic metres |

Question 66

Suppose Raelene and Trent install a tank of radius 2 metres and height 4 metres.

Which one of the following is the best estimate of how much rain needs to fall on their roof to half-fill the tank?

- | | |
|-------------|--------------|
| A 250 mm | C 1000 mm |
| B 500 mm | D 2500 mm |

UNIT 23

Questions 67 and 68

Figure 1 shows the water storage capacity of each of Wellville's nine dams. The year each dam first came into use is also shown. Total capacity of the nine dams is 1800 GL. (Note: 1 GL = one giganlitre.)

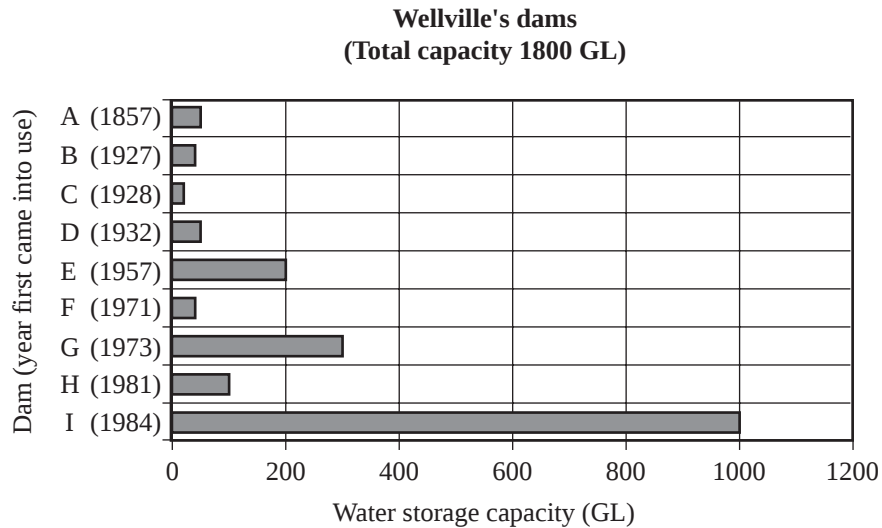


Figure 1

Question 67

What was the effect of building Dam I?

It increased the total water storage capacity by closest to

- A 55%.
- B 100%.
- C 125%.
- D 200%.

Question 68

What fraction of Wellville's total water storage capacity is in the four largest dams?

- | | |
|-----------------|-----------------|
| A $\frac{8}{9}$ | C $\frac{6}{9}$ |
| B $\frac{7}{9}$ | D $\frac{5}{9}$ |



© Edward Hopper, *Nighthawks*, 1942, oil on canvas, 84.1 × 152.4 cm, Friends of American Art Collection, 1942.51, Reproduction: The Art Institute of Chicago.

UNIT 24**Questions 69 and 70**

*The following poem was written by Julie O’Callaghan in response to **Nighthawks**, shown on the opposite page, painted by Edward Hopper in 1942.*

Nighthawks

The heat and the dark
drive us from apartments
down empty streets
to the all night diner¹
where the fluorescent lights
illuminate us like tropical fish
in a fish tank.
We sit side by side
listening to glasses clink,
the waiter whistling,
and stare at the concrete outside.
Not looking at our watches
or counting the cigarettes
and cups of coffee.

¹ diner: cafe

Question 69

O’Callaghan’s poem presents the customers in the diner as

- A relaxed and relieved.
- B anxious and nervous.
- C vigilant and expectant.
- D vacant and uncommunicative.

Question 70

O’Callaghan gives an impression of the diner as

- A a soothing retreat.
- B a kind of exposure.
- C potentially explosive.
- D glamorous and stylish.

ACKNOWLEDGMENTS: Anderson, J., *One of the Wattle Birds*, reprinted with kind permission of Penguin Group Australia; The Art Institute of Chicago for permission to reproduce *Nighthawks* by Edward Hopper; Liza Donnelly and Penguin Books, Harmondsworth, Middlesex, for the cartoon ‘Shapes 1982’ from *The New Yorker Cartoon Album 1975–1985*, 1986; Duncan, M., G. Bull, Erica Marten and A.H. & A.W. Reed, Wellington, for the extract and drawings from *Exploring Colour and Design for Handweavers*, 1978; Geoscience Australia for the extract from ‘We’re overdue for an earthquake’, *Australasian Science*, July 2003; Cara Gould and Macmillan, for the cartoon from *Issues and Arguments*, 1989; Henry, M., ‘The Triumph of Popular Culture: Situation Comedy, Postmodernism and the The Simpsons’, *Studies in Popular Culture*, 17.1 (1994), pp. 85–99; Judy Horacek for the cartoon from *If the Fruit Fits: Cartoons by Judy Horacek*, Hodder, Sydney 1999; Alan D. Iselin, for the extract from ‘The Kiwi’, *Scientific American*, Vol. 239, No. 1, July 1978; Levy, M. and M. Salvadori, for the extract from *Why Buildings Fall Down; How Structures Fail*, W.W. Norton and Norton, New York, 1992; Melbourne Water, for the extract from <http://drought.melbournewater.com.au>; Merefield, J., for the extract from ‘Dust to dust’, *New Scientist*, 21 September 2002; Julie O’Callaghan and Dolmen Press for the poem from *Edible Anecdotes*, Ireland 1983; Tranströmer, T. and Ecco Press/Harper Collins NY, for the poem from *Tomas Tranströmer: Selected Poems 1954–1986*; the website www.dougweb.com/faq.html for the passage on graffiti.

END OF QUESTION BOOK