Directions
Do not open this testpaper or start writing until the supervisor directs you to do so.

1 Time allowed: 1 hour 30 minutes

2 Perusal time: 10 minutes

3 Equipment:

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<tr>
<th>Permitted</th>
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<td>pencil sharpener</td>
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You are not permitted to borrow or lend equipment.

4 This testpaper has 50 test items, numbered 1 to 50.

5 The 50 items are arranged within 11 units.

6 For each item there are four alternative responses, represented by the letters A, B, C, D.

7 Respond to the items on the response sheet provided.

8 With your 2B pencil, blacken the whole area within one circle to represent your response (A, B, C or D) to each item. If you want to change a response, follow Direction 2 on the response sheet.

9 Be vigilant about covering your response sheet. Turn it face down unless you are actually blackening an oval.

10 You may write on this testpaper but only your response sheet will be marked.

11 You may attempt the units in any order.

12 Points to observe:
   - Work through each unit, considering items in the order given.
   - Do not waste time on any one item. If you find an item too difficult, return to it later.
   - Even if you are unsure, make a decision and mark a response. Marks are not deducted for incorrect responses.

13 You will be given a warning 30 minutes before finishing time. You will be given a final warning 10 minutes before finishing time.
UNIT 1

Items 1–3

The following poem was written by W H Auden.

A shilling life¹ will give you all the facts:
How Father beat him, how he ran away,
What were the struggles of his youth, what acts
Made him the greatest figure of his day:

5 Of how he fought, fished, hunted, worked all night,
Though giddy, climbed new mountains; named a sea:
Some of the last researchers even write
Love made him weep his pints like you and me.

With all his honours on, he sighed for one:

10 Who, say astonished critics, lived at home;
Did little jobs about the house with skill
And nothing else; could whistle; would sit still
Or potter round the garden; answered some
Of his long marvellous letters but kept none.

Note: ¹a cheap biography

Item 1

What purpose does line 8 serve in the context of the poem as a whole?

A It invites the reader to identify with the great man.
B It underscores a real flaw in the great man’s character.
C It exposes an uncharacteristic lapse in the great man’s dignity.
D It reveals that the man’s efforts were aimed at escaping deep sadness.

Item 2

What causes the critics (line 10) to be astonished?

A They were puzzled that the great man would keep his affections a secret.
B They assumed that great people form attachments with other great people.
C They were startled that the great man found time to develop an intimate friendship.
D They failed to appreciate the difficulty of maintaining a relationship with long absences.
Item 3

One interpretation of this poem is that the great man failed to win the affection of the one at home.

Which of the following lines can be used to provide the strongest support for this interpretation?

A  Love made him weep his pints like you and me.
B  With all his honours on, he sighed for one
C  Did little jobs about the house with skill
   And nothing else; ...
D  ... answered some
   Of his long marvellous letters but kept none.
UNIT 2

Items 4–5

This diagram shows a cross superimposed on a grid of squares.

Reminder: Pythagoras' Theorem: $a^2 + b^2 = c^2$

Item 4

What percentage of the grid does this cross cover?

A 64%  
B 68%  
C 72%  
D 75%

Item 5

Which of the following is closest to the total length of the sides of this cross?

A 26 units  
B 28 units  
C 29 units  
D 30 units
UNIT 3

Items 6–12

The following extract, adapted from a newspaper article, comments on witness memory and its use in the judicial system. Read through the extract quickly, then return to specific parts when responding to the items.

‘When we are highly stressed and emotional,’ says forensic psychologist Don Thomson, ‘we take out little bites. We become quite focused and don’t get the overall picture.’ Yet that is what police and courts ask of witnesses. ‘The way the legal system pretends we are machines that can recover things in a forensic way, and then challenges our credibility if we can or we can’t, is a ridiculous notion,’ says Ian Hickie, director of Sydney University’s Brain and Mind Research Institute. ‘A person’s memory cannot be taken to the laboratory and decoded or just replayed as if it’s a video account dissociated from the person.’ A memory is a record of a person’s experience of an event, not a record of the event itself. Memory is influenced by interpretation, bias and what is important to us personally.

‘There are three ways of influencing memories of an event,’ says psychologist Helen Paterson. ‘One is through leading questioning from lawyers, police, friends or other people involved; another is through inaccurate media reports and witnesses remembering the event from what is reported; a third is through discussion with co-witnesses. The first thing witnesses want to do is talk about what they have seen and how they feel. If one provides some misinformation, then everyone is infected with this misinformation. It’s not just details that change — people can create an entire event.’

‘The very brief initial police interview may actually have a detrimental effect on witnesses’ ability to fully recall the incident at a later occasion,’ says psychologist Fiona Gabbert. This is called ‘retrieval-induced forgetting’. In a brief interview soon after an event, a witness may describe a red car, but neglect to mention the numberplate. The numberplate is less likely to be mentioned by the witness in a later interview if an initial mention is not made. To address the practical difficulties for police at crime scenes, a self-administered interview has been developed by Gabbert and her colleagues. It draws on cognitive interview techniques by instructing witnesses to think carefully about the context of the crime and to report every detail, no matter how trivial, but to avoid guessing.

‘The real issue for memory,’ says Ian Hickie, ‘is about collecting information at the time the event occurs, when it’s been least distorted by recounting or interference or anything else. However, people can then do something that drives the police and everyone nuts: they can recall spontaneously in relation to some other cue — a sound, a smell, or situation. They immediately appear to have fabricated something or to have left out a critical detail.’
**Item 6**

In lines 1 and 2, Don Thomson indicates that people who are under emotional stress

A concentrate on some details to the exclusion of others.
B become much more attuned to fine details.
C are drawn to trivial and incidental details.
D fill memory gaps with imagined facts.

**Item 7**

According to Ian Hickie (lines 3–8), the legal system presumes that memory is most like a

A filter.
B sponge.
C camera.
D microscope.

**Item 8**

A ‘leading question’ is one that presumes something which has not yet been established.

Which of the following is an example of a ‘leading question’ (line 12)?

A “The police report puts you at the crime scene at 6:00 am; that’s correct, isn’t it?”
B “Isn’t it the case that your memory of the robbery is merely a colourful fiction?”
C “Why didn’t you provide the vehicle’s numberplate to police at the interview?”
D “The accused drew his gun on the officer first; isn’t that your memory of it?”

**Item 9**

All three methods of influencing witnesses’ memories (lines 11–17) work by

A planting suggestions in their minds.
B reminding them of easily forgotten details.
C playing on their fears of appearing misinformed.
D taking advantage of their desire to appear logical.

**Item 10**

How does ‘retrieval-induced forgetting’ (line 20) come about?

A Consciously trying to remember more facts causes witnesses to remember a lot fewer.
B Witnesses tend to put out of mind that which has already been remembered at interviews.
C Spotlightting a few memories early on makes the rest dimmer and thus harder to recall later.
D Anxiety produced when police try to induce witness memories actually suppresses memories.
Item 11

Fiona Gabbart (lines 18–27) has sought to lessen the effects of retrieval-induced forgetting by
A having psychologists rather than police officers interview witnesses.
B allowing the memories of witnesses to surface in their own good time.
C providing police with a comprehensive range of questions to put to witnesses.
D having witnesses systematically examine their memories straight after an event.

Item 12

What is it about witnesses that 'drives the police and everyone nuts' (line 30)?
A the unpredictable ways that their memories can be triggered
B their tendency to embellish in order to sound convincing
C their irrational behaviour when under pressure in court
D their tendency to contradict official versions of events
UNIT 4

Items 13–17

This unit looks at how square-based pyramids may be used as dice.

Normal dice are cubes with six identical square faces numbered 1 to 6. The probability of each face being uppermost when the die is thrown is one out of six. Square-based pyramids have four faces which are identical isosceles triangles, and a square base. As Figure 1 shows, pyramid dice can vary in height.

Unlike a cubic die, when a pyramid die is thrown the score is counted as the number on the face it has landed on. Opposing triangular faces are always labelled so that they add up to five.

When the pyramid die lands on its square base, the score is counted as five.

![Figure 1](image)

Regardless of the height of the pyramid die, the probability of the die landing on any of its triangular faces is always the same. The probability that a given die lands on its square base is fixed, and this sets the probabilities of getting the triangular face scores. There is little chance that a very tall pyramid die will land on its square base; so when a tall pyramid die is thrown it will score one, two, three or four most of the time.

Item 13

Figure 1 shows four pyramid dice which have been thrown together.

What is the sum of their scores?

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<td>D</td>
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</table>
**Item 14**

The four dice in Figure 1 are thrown together a second time.

Which die in Figure 1 is most likely to score two on this second throw?

A the right die  
B the left die  
C the front die  
D the back die

**The following additional information refers to items 15 and 16.**

As previously mentioned, the chance of a very tall pyramid die landing on its square base is extremely low.

It is the relationship between the side-length of a pyramid die’s base \(b\) and the die’s vertical height \(h\) that determines the likelihood that the die will land on its base and thus score five.

Here is a formula for this probability:

\[
P_5 = \frac{13(2b-h)}{50b}
\]

where \(P_5\) is the probability of the die landing on its base.

**Item 15**

A pyramid die will theoretically **never** land on its base if it has

A a base side-length of 20 mm and a vertical height of 45 mm.  
B a base side-length of 45 mm and a vertical height of 20 mm.  
C a base side-length of 35 mm and a vertical height of 25 mm.  
D a base side-length of 25 mm and a vertical height of 35 mm.

**Item 16**

A particular pyramid die is thrown 300 times and lands on its base 100 times. The side-length of this die’s base is 40 mm.

Of the following, which is closest to the height of this die?

A 29 mm  
B 30 mm  
C 34 mm  
D 35 mm
Item 17

Galligan dice are pyramid dice which are equally likely to land on each face, whether square or triangular. The five scores are thus equally likely.

Two Galligan dice are thrown. Which of the following statements is true in regard to their sum?

A. The sum of the dice is as likely to be even as it is odd.
B. The sum of the dice is more likely to be six than any other total.
C. The probabilities of all the dice's faces are equal, so all possible sums are equally likely.
D. The probabilities of the possible sums cannot be determined because they occur randomly.
UNIT 5
starts inside
this fold-out section.

Fold out this page and leave it open while you work through this unit.
UNIT 5

Items 18–21

The Eiffel Tower in Paris has inspired artists and writers since its construction in 1889. The items in this unit refer to the three images of the tower on the fold-out page opposite.

Item 18

In contrast to the Eiffel Tower in Figure 1, the tower in Figure 2

A stands aloof from the city below.
B appears to be animated and wilful.
C merges seamlessly with its environment.
D draws attention to the details of its structure.

Item 19

Compared with Figure 2, the drawing in Figure 3 displays

A less reliance on contrasts between lighter and darker features.
B greater integration between the tower and its surroundings.
C greater concern for the structural integrity of the tower.
D less interest in the surroundings of the tower.

The following additional information refers to items 20 and 21.

Two students offered very different views as to the meaning of the painting in Figure 2:

Student I The tower is without merit and will be swallowed up by the city.
Student II The tower will clear away the ruins of a city grown shabby with age.

Item 20

What evidence in the painting best supports Student I’s opinion?

A The surroundings maintain identifiable forms whereas the tower is losing its form.
B The ‘busy-ness’ of the surroundings gives them a strength lacking in the tower.
C The tower looks like a strange toy, which we’re intended to see as absurd.
D Some parts of the tower appear to be enveloped by surrounding features.

Item 21

What evidence in the painting best supports Student II’s opinion?

A The lighter tones used for the tower make it appear clean and functional.
B The individual forms of surrounding features are determined by that of the tower.
C The centrality and clarity of the tower lend it greater authority than the surroundings.
D The tower, unlike the surroundings, is painted with strong contrasts of light and dark.
UNIT 6

Items 22–24

Cement contains complex chemical substances, so a shorthand notation — called CCN (cement chemist notation) — has been devised to make it simpler to describe the substances used in its manufacture.

The table below shows some simple chemical substances and their CCN abbreviations. In this unit, CCN abbreviations are italicised. These substances, in combination, are used to represent more complex substances in cement.

For example, the CCN ‘SH₂’ refers to a combination of one molecule of silicon dioxide (SiO₂) and two molecules of water (H₂O), i.e. SiO₂·2H₂O. In normal chemical symbols, this can also be written as: SiO₂H₄ or Si(OH)₄. Both of these are legitimate formulas. Irrespective of which formula is used, this substance contains one silicon (Si) atom, four oxygen (O) atoms and four hydrogen (H) atoms.

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<tr>
<th>CCN</th>
<th>chemical substance</th>
<th>formula</th>
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<tbody>
<tr>
<td>S</td>
<td>silicon dioxide</td>
<td>SiO₂</td>
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<tr>
<td>C</td>
<td>calcium oxide</td>
<td>CaO</td>
</tr>
<tr>
<td>H</td>
<td>water</td>
<td>H₂O</td>
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<tr>
<td>M</td>
<td>magnesium oxide</td>
<td>MgO</td>
</tr>
</tbody>
</table>

Item 22

One complex substance in cement is expressed in CCN as CH.

Which of the following statements is true of this substance?

A  It has one Ca atom, one H atom and one O atom.
B  It has one Ca atom, two H atoms and one O atom.
C  It has one Ca atom, one H atom and two O atoms.
D  It has one Ca atom, two H atoms and two O atoms.

Item 23

The formula for a particular mineral, expressed in CCN, is M₃S₂H₂.

Which of the following is an alternative legitimate formula for this mineral?

A  Mg₃Si₂O₅H₂
B  Mg₃Si₂O₅H₂
C  Mg₃Si₂O₅(OH)₄
D  Mg₃Si₂O₅(H₂O)₄
Item 24

In balanced chemical equations, the numbers of atoms on both sides of the equation are equal and the types of atom on both sides of the equation are the same. The same principle applies for equations written in CCN. For example, in a balanced equation involving $S$ molecules, both sides of the equation need to show the same number of $S$ molecules.

The chemical equation below is written in CCN. The letters $x$, $y$, $z$ and $p$ represent the numbers of each CCN combination of substances needed to balance the equation:

$$xC_{3}S + yH \rightarrow zC_{3}S_{2}H_{2} + pCH$$

The correct numbers for $x$, $y$, $z$ and $p$ are, respectively,

A  1, 3, 1, 3.  
B  2, 6, 1, 3.  
C  2, 3, 1, 3.  
D  2, 6, 1, 1.
UNIT 7

Items 25–29

The pitch of a musical tone measures how high (e.g. a whistle) or low (e.g. a bass drum) the tone is. People with ‘absolute pitch’ (AP) have the ability to recognise the pitch of a musical tone instantly and without first hearing an external reference pitch. A team of researchers set up an experiment to investigate the nature and extent of absolute pitch.

Researchers divided a group of musicians into two subgroups: (1) those who reported having AP, and (2) those who reported not having AP. They then presented each subject with tones from an artificial tone generator, which produces a pure tone. They were then given the same tones from a piano. Pianos produce tones that are more complex than pure tones (though centred on pure tones) but which are characteristic for the instrument. In the experiment, correct identification of a tone scored one mark, incorrect identification scored no mark. The maximum possible score for each was 36.

Based on data gathered, the researchers divided those subjects who reported having AP into (1) those who did in fact have AP (according to the researchers’ criteria), and those who did not. Those subjects who met the researchers’ criteria for AP were divided into four classes, from AP–1 (highest level of AP) to AP–4 (lowest level of AP).

The data points, and the researchers’ classification of them, are shown in Figure 1.
Item 25

In relation to the ability to recognise piano tones relative to pure tones, which of the following statements is consistent with Figure 1?

A  Recognising piano tones is easier than recognising pure tones.
B  Recognising piano tones is harder than recognising pure tones.
C  It is just as hard to recognise piano tones as it is to recognise pure tones.
D  Only those with absolute pitch find it easier to recognise piano tones than pure tones.

Item 26

Given the classification of data points in Figure 1, which of the following best reflects the minimum scores for meeting the researchers’ criteria for having AP?

A  pure tone score > 15 and piano tone score > 25
B  pure tone score > 25 and piano tone score > 25
C  pure tone score > 10 and piano tone score > 25
D  pure tone score > 25 and piano tone score > 20

Item 27

Which of the following offers a reason for the use of electronic ‘pure tone’ generators in assessing AP that is consistent with the information given?

A  Individual ears respond differently to piano tones, but respond similarly to pure tones.
B  Using only scores derived from musical instruments necessarily yields inflated AP scores.
C  Pure tone scores provide a check on the variability of scores from tones derived from different musical instruments.
D  The human ear is now more attuned to music generated electronically, and this needs to be structured into AP research designs.

Item 28

The data points in Figure 1 consist of paired scores for pure and piano tones respectively. Assume that the following paired scores were obtained by four subjects not included in the initial experiment.

Which paired score is most likely to be classified by the researchers as AP–3?

A  19, 32  C  25, 30
B  21, 28  D  26, 29
Item 29

If there were 50 subjects in the experiment, which bar graph best represents their combined scores in respect of piano tones?

A

B

C

D
UNIT 8

Items 30–34

This unit presents three adapted letters to the editor of a newspaper, written by different people in response to an opinion piece on climate change by science journalist Matthew Warren.

Letter 1

Matthew Warren points out that there is a ‘growing belief in global warming’ and that ‘governments and scientists need to get their projections right’. This is just the point that myself and other atmospheric scientists have been making for a long time. We don’t know yet, or understand enough yet, about our climate and possible climate change to make definitive statements regarding when serious climate change will occur. Sure, we know that increasing greenhouse gases will warm the atmosphere but because of feedback effects we don’t know exactly yet by how much.

Item 30

Which of the following best summarises the point that the author of Letter 1 says he and others have been making for a long time?

A  There are many beliefs about global warming but no factual data.
B  There is consensus amongst scientists on the causes of global warming.
C  Climate change models are still too imprecise to support effective solutions.
D  Governments, not scientists, need to solve problems posed by global warming.

Item 31

What does the author of Letter 1 mean by the term ‘definitive’ (line 5)?

A  detailed
B  bold
C  credible
D  conclusive
Letter 2

Thank you, Matthew Warren, for bringing a lot more balance to the greenhouse gas debate. There is a broad range of opinions, which have raised very serious questions. I really encourage this newspaper to dig further and present more arguments from both sides. If we are really going to have to make the sort of economic and social changes that many people are suggesting, they should be required to present us with a case that is 'beyond reasonable doubt'.

Item 32

Which of the following offers the best representation of the last sentence of Letter 2?

A When people’s livelihoods are at stake, they will demand an unrealistically high level of proof from scientists.
B Any changes to government policy must be based on climate data judged by all stakeholders to be convincing.
C Climate change debate will have to move to the legal arena before governments will agree to major socioeconomic reforms.
D Regardless of what experts advise, it is ordinary people who ultimately will decide what socioeconomic changes are acceptable.

Letter 3

Matthew Warren’s article throws doubt on science. There are so few climate change sceptics with scientific credentials that they can be named individually. The jury is not out — climate change and the substantial threat it poses to the whole planet are real. Despite all the evidence, some sections of the media portray a significant amount of scientific disagreement, while politicians drag their feet in finding meaningful and global responses.

The media should foster debate about the policies and actions that are required to deal with climate change. We know we need a raft of solutions, not just one, and looking for new technologies like clean coal is indeed one that holds promise. But it is only one, and will on its own not be enough to address this problem.

Item 33

By saying that ‘the jury is not out’ (line 2), the author of Letter 3 means that the ‘jury’ in the climate change debate

A has failed to reach a verdict.
B is still considering its verdict.
C has already reached a verdict.
D has yet to consider its verdict.
Item 34

According to Letter 3, the media can best contribute to climate change debate by

A serving as a public forum for ideas on how to tackle the reality of climate change.
B objectively reporting ‘credentialled’ views rather than taking sides in the debate.
C urging politicians to acknowledge the existence of a serious climate problem.
D presenting balanced coverage of a broad spectrum of views.
UNIT 9

Items 35–39

One hundred cards are numbered consecutively from 1 to 100. The number is printed on both sides of each card. Each card has a grey side and a white side. Initially the cards are laid out in sequence in a line with their grey sides facing up. A part of this line is shown below.

![Card Layout Image]

An activity using these cards has 100 rounds. In each round a player flips cards according to a rule. Flipping a card involves turning it over, so that if, at the start of a round, the card was grey side up, it will be flipped to white side up, and vice versa. The rule that applies in this activity is as follows:

‘During the n\textsuperscript{th} round, cards that are multiples of n are flipped.’

For example, during the 20\textsuperscript{th} round a player flips only the cards numbered 20, 40, 60, 80 and 100.

Item 35

Which of the following diagrams shows cards 1 to 6 after each of the first four rounds?

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Item 36
In which round will the player flip card 60 for the ninth time?
A 10  C 20  
B 15  D 30

Item 37
At the end of round 10, how many flips has the player made in total?
A 27  C 291
B 55  D 482

Item 38
How many cards are flipped three times during the first three rounds?
A 16  C 50  
B 33  D 83

Item 39
Which of the following statements is consistent with the information given?
Over the entire 100 rounds,
A every card is flipped at least twice.
B no card is flipped more than ten times.
C some cards are flipped only after the 50th round.
D only ten cards are flipped during the last ten rounds.
UNIT 10

Items 40–45

The following extract from a novel describes the main character Gustav Aschenbach, who is a famous writer.

Remote on one hand from the banal, on the other from the eccentric, his genius was calculated to win at once the adhesion of the general public and the admiration, both sympathetic and stimulating, of the connoisseur. From childhood up he was pushed on every side to achievement, and achievement of no ordinary kind; and so his young days never knew the sweet idleness and blithe laissez aller¹ that belong to youth. A nice observer once said of him in company — it was at the time when he fell ill in Vienna in his thirty-fifth year: ‘You see, Aschenbach has always lived like this’ — here the speaker closed the fingers of his left hand to a fist — ‘never like this’ — and he let his open hand hang relaxed from the back of his chair. It was apt. And this attitude was the more morally valiant in that Aschenbach was not by nature robust — he was only called to the constant tension of his career, not actually born to it.

Note: ¹French expression meaning the freedom to do whatever one wants

Item 40

The first sentence (lines 1–3) suggests that, as a writer, Aschenbach
A appealed more to the public than to the connoisseur.
B distanced himself from the distractions of daily life.
C was oblivious to what people thought of him.
D managed to please a wide variety of people.

Item 41

What difference is suggested between the ways the general public and connoisseurs responded to Aschenbach’s writing?
A The connoisseurs were more sympathetic to it than was the general public.
B The public liked what he wrote whereas the connoisseurs liked the way he wrote.
C The connoisseurs praised it well, yet without the public’s sense of loyal attachment.
D The public liked it without understanding it; the connoisseurs understood it without liking it.

Item 42

What does this extract reveal about Aschenbach as a child?
A He showed a strong aptitude for writing from a very early age.
B He was not naturally suited to the rigours of the writing profession.
C He was talented but wayward and needed the discipline that writing provided.
D He showed early signs of the strength and determination needed to be an elite writer.
Item 43

What did the observer intend to convey about Aschenbach in lines 7–9?

A. He possessed an aggressive streak that was harnessed through his writing.
B. He used to retaliate against attempts to push him to over-achieve.
C. He always had a life that was tightly structured around him.
D. He defined himself in fundamental opposition to the world.

Item 44

For a person to be ‘called to’ something (as in lines 10 and 11) implies that the person

A. is unaware of hidden talents that must then be recognised and nurtured by others.
B. finds one’s true path early on in life and is both willing and able to pursue it.
C. feels compelled to pursue a path yet struggles with the necessity of it.
D. follows a particular path despite knowing they are not suited to it.

Item 45

Which of the following comments about childhood is similar to that sketched for Aschenbach in this extract?

A. ‘Children have more need of models than of critics.’ Joseph Joubert
B. ‘Give me the child until he is seven and I’ll give you the man.’ St Francis Xavier
C. ‘If children grew up according to early indications, we should have nothing but geniuses.’ Goethe
D. ‘That energy which makes a child hard to manage is the energy which afterward makes him a manager of life.’ H W Beecher
UNIT 11

Items 46–50

This unit looks at a method of representing quantitative information called a ‘bubble map’. Figure 1 is a bubble map showing the annual production of natural gas for each of ten countries in South-East Asia and Australasia during 2007. The largest producer, Indonesia, produced 72.3 billion cubic metres (bcm) of natural gas. Each country shown produced some natural gas in 2007.

The procedure for constructing the bubble map is as follows:

- the largest annual production is represented by a green (●) bubble;
- high-level producers are shown with yellow (○) bubbles — each yellow bubble represents a level of production equivalent to 10% of that represented by a green bubble;
- mid-level producers are shown with magenta (●) bubbles — each magenta bubble represents a level of production equivalent to 1% of that represented by a green bubble.

Production percentages are rounded off (to the nearest 10% for high-level producers and to the nearest 1% for mid-level producers) before determining the number of bubbles to be placed on the map for each country.

![Map of South-East Asia and Australasia showing bubble map for natural gas production](image-url)
Item 46

With respect to natural gas production in 2007, which of the following statements is consistent with information in Figure 1?

A  Vietnam and the Philippines together produced more than Burma.
B  Brunei produced less than Vietnam but more than the Philippines.
C  Indonesia produced more than Malaysia and Brunei combined.
D  Thailand produced more than Burma but less than Australia.

Item 47

Which of the following statements about the natural gas production of Papua New Guinea in 2007 is consistent with the information given?

A  Its production could have been 0.37 bcm.
B  There was no natural gas production in 2007.
C  Its production could have been up to 0.723 bcm.
D  Its production was less than 0.5% of Indonesia’s.
The following additional information refers to items 48–50.

Table 1 lists crude oil production in 2007 for each of the ten countries named in Figure 1.

<table>
<thead>
<tr>
<th>country</th>
<th>crude oil produced (bpd¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>540000</td>
</tr>
<tr>
<td>Brunei</td>
<td>180500</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1044000</td>
</tr>
<tr>
<td>Malaysia</td>
<td>757500</td>
</tr>
<tr>
<td>Burma</td>
<td>21900</td>
</tr>
<tr>
<td>New Zealand</td>
<td>47850</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>47800</td>
</tr>
<tr>
<td>Philippines</td>
<td>23930</td>
</tr>
<tr>
<td>Thailand</td>
<td>348600</td>
</tr>
<tr>
<td>Vietnam</td>
<td>350700</td>
</tr>
</tbody>
</table>

Note: ¹barrels per day

**Item 48**

Imagine you are creating a bubble map that shows crude oil production using the same principles as for Figure 1, and the data in Table 1.

Of the following, which country will have the same colour and number of bubbles on the new map as it did in Figure 1?

A  Brunei  
B  Australia  
C  Burma  
D  Thailand

**Item 49**

What will be the total number of yellow bubbles on a bubble map based on the data in Table 1?

A  19  
B  20  
C  21  
D  22
Item 50

The world’s largest producer of crude oil during 2007 was Saudi Arabia, which produced 10.25 million barrels per day.

On a global bubble map, how many of the countries listed in Table 1 will appear as high-level producers of crude oil?

A  one      C  five
B  two      D  six