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 allowed:

<table>
<thead>
<tr>
<th>Permitted</th>
<th>Not permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B pencils</td>
<td>own paper</td>
</tr>
<tr>
<td>pencil sharpener</td>
<td>dictionary</td>
</tr>
<tr>
<td>eraser</td>
<td>thesaurus</td>
</tr>
<tr>
<td>ruler</td>
<td>protractor</td>
</tr>
<tr>
<td>approved calculator</td>
<td>drawing compass</td>
</tr>
<tr>
<td>highlighter</td>
<td>electronic devices</td>
</tr>
<tr>
<td>transparent container</td>
<td></td>
</tr>
<tr>
<td>other approved items</td>
<td></td>
</tr>
</tbody>
</table>

You are not permitted to borrow or lend equipment.

4 This testpaper has 50 test items, numbered 51 to 100.

5 The 50 items are arranged within 10 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 O 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 12

Items 51–54

This unit presents a series of quotations.

Item 51

Consider the following comment on philosophy:

‘A blind man in a dark room looking for a black hat which isn’t there.’

What does the author of this comment think about philosophy?
A  It plays on our love of mystery.
B  It is a meaningless exercise in futility.
C  It shows us how much we really don’t know.
D  It focuses on questions as elusive as they are important.

Item 52

‘Not hammer strokes, but dance of the water sings the pebbles to perfection.’

Which of the following best captures the meaning of this comment?
A  Persuasion is more effective than force.
B  It takes great wisdom to achieve perfection.
C  Perfection is a continuous process rather than an end.
D  Nature’s tools are more effective than those of humans.

Item 53

‘A wise person hears one word and understands two.’

According to this proverb, a wise person understands
A  what is not said as well as what is said.
B  that what is said is not what is meant.
C  twice as much as an unwise person.
D  that word meanings can be elusive.

Item 54

Three of the following quotations express similar sentiments. Which one does not?
A  ‘Compassion for oneself is the most powerful healer of them all.’
B  ‘A person cannot be comfortable without their own approval.’
C  ‘We are all serving a life sentence in the prison of self.’
D  ‘The greatest success is successful self-acceptance.’
UNIT 13

Items 55–59

In a television show called So You Think You Can Cook, fourteen contestants remain. For the next task, they are to be divided into five groups — four groups of three and one group of two.

The show’s producer asks each contestant to complete a form in which they indicate two other contestants they would like to have as partners for this task. They complete these forms secretly and without discussion amongst themselves.

The producer then draws the following diagram to represent the choices of the contestants. Each contestant is identified by the initial of their first name.

![Diagram of contestant choices]

**Key:**

![Diagram of contestant choices]

means ‘female contestant E chooses male contestant R as her partner’.

The producer uses the following terms to describe different types of contestant:

- **independents** are contestants not chosen as partners by any other contestant;
- **targets** are contestants chosen by more than two other contestants;
- when two contestants choose each other as partners, it is termed a **mutual choice** and the pair is called a **mutual pair**.

**Item 55**

How many contestants are independents?

A one  
B two  
C three  
D four
Item 56

Three contestants were chosen only by contestants other than the ones they chose themselves. Who are they?

A  S, R and E  C  R, E and L
B  S, E and K  D  E, K and L

Item 57

Which of the following statements is consistent with the information given?

A  Every target is involved in at least one mutual pair.
B  Eight of the contestants belong to at least one mutual pair.
C  Three of the contestants are involved only in mutual pairs.
D  Mutual pairs more often consist of two female contestants.

The following additional information refers to items 58 and 59.

When deciding the composition of the five groups, the producer applies the following rules:

1. There will be no all-female or all-male groups.
2. Targets will be partnered with at most one of the contestants they chose.
3. No contestant will be 'stranded', i.e. placed in a group with no other contestants they chose.

Item 58

Which one of the following groups of three obeys all three rules?

A  SRF  C  ELH
B  MEJ  D  VWL

Item 59

The producer decides to work out first who will be in the group of two. Because of Rules 1 and 3, the contestants in this group must be a female–male mutual pair.

Which of the following correctly explains why the producer’s only viable option is GP?

A  Pairing R with F leads to S eventually being stranded.
B  Rule 2 stops P from being paired with W, so she must go with G.
C  H cannot be paired with L as both are female; the same applies to M and F.
D  All other female–male mutual pairings lead to another contestant being stranded.
UNIT 14

Items 60–63

The following adapted extract comments on how historians construct knowledge.

The historian arrives at truth through probability. This does not mean ‘a doubtful kind of truth’ but a firm reliance on the likelihood that evidence which has been examined and found solid is reliable. If you receive a letter from a relative that bears what looks like her signature, that refers to family matters you and she commonly discuss, and that was postmarked in the city where she lives, the probability is very great that she wrote it. The contrary hypothesis would need at least as many opposing signs in order to take root in your mind — though the possibility of forgery, tampering, and substitution is always present.

The number of signs that point to genuineness reinforce one another and vastly increase the total probability. If their force could be measured, it would amount not to their sum but to their product. In other words, with each added particle of truthfulness, it becomes far less likely that deception has been practised or an error committed. In cases where no direct sign is available, a concurrence of indirect signs will establish proof. The ‘circumstantial evidence’ of the law courts is a familiar example of this type of mute testimony. It must always be received with caution and tested bit by bit, but when it survives analysis its probative value is fully as great as the testimony of witnesses — and often greater.

Item 60

The first paragraph gives an example to show how historians

A test the authenticity of available information.
B collect information about people and places.
C check the credibility of statements by relatives.
D discover the underlying reasons for past actions.

Item 61

For the ‘contrary hypothesis’ (line 6) to become reasonable, one would have to

A let the possibility of forgery, tampering and substitution take root in the mind.
B interpret the existing signs in such a way as to support the contrary hypothesis.
C rule out the possibility of deception by establishing an equal number of opposing signs.
D find evidence counteracting the existing hypothesis that is as good as the signs that support it.
Item 62

Of the following graphs, which best represents the general sense of lines 9–12?

A  
\[ \text{increasing likelihood of event} \]
\[ \text{increasing number of signs} \]

B  
\[ \text{increasing likelihood of event} \]
\[ \text{Increasing number of signs} \]

C  
\[ \text{increasing likelihood of event} \]
\[ \text{increasing number of signs} \]

D  
\[ \text{increasing likelihood of event} \]
\[ \text{increasing number of signs} \]

Item 63

In relation to historical research, evidence is 'circumstantial' (line 14) when it

A  draws upon conventional wisdom about the past.

B  provides background information for historical events.

C  can be linked to other historical data only by inference.

D  can be shown to be from the historical period being studied.
UNIT 15
starts inside
this fold-out section.

Fold out this page and leave
it open while you work
through this unit.
Figure 1: trip planners, Somerset to Hobart (not to scale)
UNIT 15

Items 64–68

Figure 1 on page 9, adapted from an old motoring guide, shows a trip planner. This planner offers four alternative road routes (numbered 1 to 4) from Somerset to Hobart in Tasmania. A number of side roads are shown as well, and some of these provide connections between routes. Intermediate and total road distances are provided for each route.

Item 64

The percentage of the length of ROUTE 3 that is subject to winter closure is closest to

A 25%.
B 32%.
C 40%.
D 43%.

Item 65

Excluding towns on side roads, how many towns listed in Figure 1 are shown only on ROUTE 2?

A two
B three
C four
D five

Item 66

A person set out from Somerset along ROUTE 4 at 8:50 am and arrived in Hobart at 4:45 pm the same day. No trips were made down side roads.

Without considering time taken for rest stops, the average speed at which this person drove is closest to

A 73 km/h.
B 74 km/h.
C 78 km/h.
D 83 km/h.
Item 67

A road trip from Oatlands to Perth used ROUTES 1 and 4 as follows:

ROUTE 1: Oatlands to Campbell Town;
at Campbell Town, side road to ROUTE 4;
ROUTE 4: drive directly through Bicheno and on to St Marys;
at St Marys, side road back to ROUTE 1;
ROUTE 1: drive through Conara Junction and on to Perth.

Which of the following diagrams best reflects the midpoint (▼) of this trip?

A  
B  
C  
D  

Item 68

The following scale map shows the four routes between Somerset and Hobart. Bear in mind that some of the routes overlap.

Which of the following is closest to the difference between the distance from Somerset to Hobart along ROUTE 2 and the straight-line distance?

A  70 km  
B  120 km  
C  190 km  
D  240 km
UNIT 16

Items 69–74

This unit is based on two adapted passages from Tobias Wolff’s novel, *Old School*, which is set in the 1960s. In the novel, students had written poems to be judged by the famous poet, Robert Frost. In Passage 1, two unsuccessful candidates, one of whom is the narrator, discuss the winning poem.

Passage 1

Purcell fell in with me outside the dining hall and declared his astonishment that George’s poem had been selected. His respect for Frost’s intelligence, he said, had suffered irreversible damage.

George’s poem isn’t that bad, I said, if you read it a certain way.

As a take-off,

5 Right, as a take-off.

But it isn’t a take-off.

It could be. That’s how Frost read it.

But it isn’t. And you know that.

It doesn’t matter what I know.

Rubbish.

It doesn’t. Let’s say you find it in a bottle. You’re walking on the beach and you find George’s poem in a bottle. You don’t know anything about the person who wrote it, you just have the poem. You’d probably read it as a take-off.

Frost. I don’t know why I even bothered submitting anything, given how he writes. I mean, he’s still using rhyme.

Yeah, so?

Rhyme is rubbish. Rhyme says that everything works out in the end. All harmony and order. When I see a rhyme in a poem, I know I’m being lied to. Go ahead, laugh! It’s true—rhyme’s a completely bankrupt device. It’s just wishful thinking. Nostalgia.

Note: 1 an imitation

Item 69

When the narrator says, ‘It doesn’t matter what I know’ (line 10), he indicates that

A he is reluctant to change his opinion about George’s poem.

B he has no fixed opinion but defers to the wisdom of others.

C people are entitled to reach their own conclusions about poems.

D the author’s intention is the important thing, not the reader’s perception.

Item 70

Which of the following pairs of words best describes Purcell’s tone in lines 15–20?

A doubtful and conflicted

B resentful and dogmatic

C cautious and analytical

D sarcastic and flippant
Item 71

Of the following, which best captures Purcell’s attitude to rhyme?

A  Poets have to use words they don’t mean just to get their rhyme schemes to work.
B  Rhyme implies things about human experience that contradict the realities of life.
C  Rhyme promises much but in fact delivers little of enduring artistic value.
D  Poets use rhyme mainly because readers have come to expect it.

Items 72 and 73 refer to Passage 2.

Later in Wolf’s novel, Robert Frost gives a talk to staff and students at the school. During the talk, a teacher asks Frost whether recent wars and scientific advances should stimulate a shift away from ‘structured’ poetic form (i.e. containing rhyme and metre) toward freer and more spontaneous modes of expression. Here is part of Frost’s response:

Passage 2

Don’t tell me about science, and don’t tell me about war. I lost my nearest friend in the one they call the Great War.¹ So did Achilles lose his friend in war, and Homer² did no injustice to his grief by writing about it in dactylic hexameters.³ But about my friend. I wrote a poem for him. I still write poems for him. Would you honour your own friend by putting words down anyhow, just as they come to you — with no thought for the sound they make, the meaning of their sound, the sound of their meaning? Would that give a true account of the loss?

I am thinking of Achilles’ grief. That famous, terrible, grief. Let me tell you boys something. Such grief can only be told in form. Maybe it only really exists in form. Form is everything. Without it you’ve got nothing but a stubbed-toe cry — sincere, maybe, for what that’s worth, but with no depth or carry. No echo. You may have a grievance but you do not have grief, and grievances are for petitions, not poetry.

Notes:
¹ World War 1 (1914–1918)
² ancient Greek poet who wrote about the legendary hero Achilles in the Trojan War
³ a particular form of ‘structured’ poetry originating in ancient Greece

Item 72

In Passage 2, Frost regards spontaneity in poetry as a sign of

A  disrespect.  C  honesty.
B  creativity.  D  pretence.

Item 73

What was the purpose of the poetry that Frost wrote for his friend?

A  to give closure to his own grief
B  to speak against the injustice of war
C  to preserve the memory of his friend
D  to justify the sacrifice that his friend made
Item 74 refers to both passages.

**Item 74**

What is a key difference between Purcell’s view of form and Frost’s?

<table>
<thead>
<tr>
<th>For Purcell, form</th>
<th>For Frost, form</th>
</tr>
</thead>
<tbody>
<tr>
<td>A makes the human experience easier to bear.</td>
<td>makes the human experience harder to bear.</td>
</tr>
<tr>
<td>B keeps honest poets from writing truthfully.</td>
<td>is best suited to poems with military themes.</td>
</tr>
<tr>
<td>C brings confusion into the writing process.</td>
<td>shows its true worth in retelling epic stories.</td>
</tr>
<tr>
<td>D constricts thoughts that ought to be free.</td>
<td>enables the transmission of human emotions.</td>
</tr>
</tbody>
</table>
UNIT 17

**Items 75–79**

In 1934 an Indian student named S P Sundaram constructed an array of whole numbers which he called a sieve. This unit looks at some of its patterns and properties.

The table below shows how Sundaram’s Sieve begins. The numbers are arranged in rows and columns which extend infinitely to the right and down. In the table, rows and columns are labelled. For example, 37 appears in the 2nd row and the 7th column (R₂C₇).

<table>
<thead>
<tr>
<th></th>
<th>C₁</th>
<th>C₂</th>
<th>C₃</th>
<th>C₄</th>
<th>C₅</th>
<th>C₆</th>
<th>C₇</th>
<th>etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R₁</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>19</td>
<td>22</td>
<td>......</td>
</tr>
<tr>
<td>R₂</td>
<td>7</td>
<td>12</td>
<td>17</td>
<td>22</td>
<td>27</td>
<td>32</td>
<td>37</td>
<td>......</td>
</tr>
<tr>
<td>R₃</td>
<td>10</td>
<td>17</td>
<td>24</td>
<td>31</td>
<td>38</td>
<td>45</td>
<td>......</td>
<td></td>
</tr>
<tr>
<td>R₄</td>
<td>13</td>
<td>22</td>
<td>31</td>
<td>40</td>
<td>49</td>
<td>......</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R₅</td>
<td>16</td>
<td>27</td>
<td>38</td>
<td>49</td>
<td>......</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R₆</td>
<td>19</td>
<td>32</td>
<td>45</td>
<td>......</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td>......</td>
<td>......</td>
<td>......</td>
<td>......</td>
<td>......</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Item 75**

What number appears in R₃C₆?

A 76  
B 85  
C 93  
D 104

**Item 76**

Which of the following expressions is a formula for finding the number in the \(n^{th}\) row and the \(4^{th}\) column (RₙC₄)?

A \(9 + 4n\)  
B \(9n + 4\)  
C \(13 + 9n\)  
D \(13n + 9\)
The following additional information refers to items 77–79.

If a whole number cannot be divided exactly by any whole number less than itself and greater than 1, the number is said to be prime.

Numbers which have factors other than themselves and 1 are called composite numbers; for example, 15 is composite — its factors are 1, 3, 5 and 15.

Any number which appears in Sundaram's Sieve will yield an odd composite number when it is multiplied by 2 and 1 is added on. For example, applying this process to 10 (at $R_5 C_5$) yields 21 which is an odd composite number. For convenience, call this the $(2x + 1)$ process.

Any number which does not appear in Sundaram's Sieve always yields a prime number when the $(2x + 1)$ process is applied. For example, 9 clearly does not appear in the sieve and applying the process yields the prime number 19.

**Item 77**

The $(2x + 1)$ process is applied to the number in $R_5 C_5$.

Which of the following numbers is a factor of the number which results?

<table>
<thead>
<tr>
<th>A</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>15</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
</tr>
<tr>
<td>D</td>
<td>23</td>
</tr>
</tbody>
</table>

**Item 78**

Applying the $(2x + 1)$ process to the numbers in the 5th row gives a sequence which starts 33, 55, 77, 99...

If the $(2x + 1)$ process is applied to the numbers in the 100th row, what will be the first number in the sequence produced?

<table>
<thead>
<tr>
<th>A</th>
<th>201</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>301</td>
</tr>
<tr>
<td>C</td>
<td>603</td>
</tr>
<tr>
<td>D</td>
<td>660</td>
</tr>
</tbody>
</table>

**Item 79**

The odd composite number 1271 ($= 41 \times 31$) emerges from applying the $(2x + 1)$ process to the number at $R_{20} C_{15}$ in Sundaram's Sieve.

A formula for directly finding the number in the $x^{th}$ row and $y^{th}$ column of the sieve is

<table>
<thead>
<tr>
<th>A</th>
<th>$R_x C_y = 2(xy + x + y)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>$R_x C_y = (2x + 1) \times (2y + 1)$</td>
</tr>
<tr>
<td>C</td>
<td>$R_x C_y = 4xy + 2x + 2y + 1$</td>
</tr>
<tr>
<td>D</td>
<td>$R_x C_y = 2xy + x + y$</td>
</tr>
</tbody>
</table>
UNIT 18

Items 80–83

In the following extract from a travel book, the author recounts a conversation with a young man in China. The latter speaks first.

‘We are not like our parents. We have no time and no security. You say we walk differently from the old, well that is why. It’s something nervous.’

He seemed to wince across the restaurant table: a young man, barely twenty-three, with a pale, heart-shaped face. ‘Our parents’ world was safer: state pensions, assured jobs and housing. And they want to go on as before, cautiously, preserving. But my generation — our world depends on us.’

He looked at once anxious and excited. This was the sea change that was transforming China. All at once the future had grown more potent than the past. Change was rendering things obsolete. You could see this where highrise apartment blocks barged into the old suburbs, bulldozing the clustered generations of the communal courtyard and banking up tiers of nuclear families in their place. Whole regions of the city had become unrecognisable, the man said. And of course it was not merely buildings that were being exchanged, it was the values they fostered.

‘I spent my childhood in those old hùtòng courtyards. Relationships were warmer then.’

His mouth puckered, as if hunting a lost taste. I wondered if he were not simply regretting being adult. ‘Now we live on the fourteenth floor of a skyscraper, and whenever we go out we lock an iron door behind us.’

He was the awkward byproduct of this changed world. He loved animals and green spaces — in childhood he had longed hopelessly for a dog — and was studying ecology with a tinge of despair at his country’s ruthlessness.

Item 80

The young Chinese man looks to his own future with

A utter hopelessness.
B quiet anticipation.
C solid scepticism.
D mixed feelings.

Item 81

In saying that China’s ‘future had grown more potent than the past’ (line 8), the author implies that China’s future

A can no longer be predicted by analogy with its past.
B will be far more accommodating than the past ever was.
C is regarded as a threat and the past as a source of comfort.
D is driving the nation forward to a greater extent than the past.
Item 82

How does the author regard this young Chinese man?

A  He has enjoyed a cocooned childhood and so has developed little resilience to change.
B  He longs to take his place in the modern world but cannot leave behind his traditions.
C  He has been an ungrateful beneficiary of recent social and cultural changes in China.
D  He has been the unwitting victim of a profound and rapid process of cultural change.

Item 83

What does the young Chinese man think about China's current situation?

A  It is a period of loss of cultural values which will not be replaced.
B  It is a difficult time of transition which will turn out well in the end.
C  China will continue to lack direction until it looks once more to the past.
D  It is a necessary phase through which China will work to regain stability.
UNIT 19

Items 84–88

The Fred Hollows Foundation (FHF) performs sight-restoring surgery in many third-world countries on patients who have blindness caused by cataracts (clouding in the lens of the eye). The following information, adapted mainly from a brochure published by the FHF, presents health facts and statistics for its program in Vietnam in 2009.

**Health Facts: Vietnam**

- population: 86.1 million
- number of doctors (per 10 000 people): 6.4
- number of blind people: 380 800
- blindness caused by cataracts: 60%
- number of eye surgeons: 555
- new cases of cataract blindness every year: 84 000
- cataract surgery rate (operations per million people per year): 860

**2009 Achievements of Fred Hollows Foundation: Vietnam**

- screened 572 455 adults
- screened 237 693 school children for eye health
- conducted 27 331 successful operations for cataract blindness
- trained 2193 eye-health workers (including 17 eye surgeons)

---

**Item 84**

The number of doctors in Vietnam in 2009 was closest to

A 13 500.  
B 55 100.  
C 64 000.  
D 74 300.
Item 85

The percentage of people in Vietnam with existing cases of cataract blindness who were cured by the FHF in 2009 is closest to

A  4%.
B  7%.
C  11%.
D  12%.

Item 86

In 2009, by how much would the cataract surgery rate have needed to increase in order to keep pace with the new cases of cataract blindness?

A  84 operations per million
B  116 operations per million
C  136 operations per million
D  275 operations per million

Item 87

Australia’s population in 2009 was about 22.1 million and it had approximately 67000 doctors.

Which of the following statements best describes the number of people per doctor in Australia compared with the equivalent figure in Vietnam in 2009?

A  Vietnam had more doctors and a larger number of people per doctor than Australia.
B  Australia had a larger number of people per doctor than Vietnam but more doctors.
C  Australia had nearly five times as many doctors per person as Vietnam.
D  Vietnam had a larger number of doctors per person than Australia.

Item 88

The cost of plastic replacement lenses was once the major expense in cataract surgery. But through research and development, the FHF managed to reduce this cost from $150 in 1992 to $8 in 2009. This contributed to a reduction in the cost of each operation from $180 to $25 over this period. As a result, the total cost of successful operations in 2009 was far less than it would have been if the FHF had had to pay 1992 prices.

The saving was closest to

A  $3.9 million.
B  $4.1 million.
C  $4.2 million.
D  $4.5 million.
UNIT 20

Items 89–95

This unit considers two views on the U.S. government's provision of welfare. William G Sumner, the author of the adapted extract in Passage 1, wrote about the so-called 'Forgotten Man' in 1883, shortly after a lengthy economic depression.

Passage 1

The type and formula of most schemes of humanitarianism is this: W and X put their heads together to decide what Y shall be made to do for Z. The radical vice of all these schemes, from a sociological point of view, is that Y is not allowed a voice in the matter, and his position, character, and interests are entirely overlooked. I call Y the Forgotten Man. All social doctors fix their minds on some group of men whose case appeals to the sympathies and the imagination, and they plan remedies addressed to the particular trouble. They are always under the dominion of the superstition of government, and forget that a government produces nothing at all. The State cannot get a cent for any man without first taking it from some other man, and this latter must be a man who has produced and saved it. This latter is the Forgotten Man.

Item 89

Sumner regards W and X as being:

A misguided and arrogant. 
B intelligent and purposeful.
C innovative but naive. 
D sensible but inflexible.

Item 90

Sumner represents 'humanitarianism' in a way that

A invites a fair assessment of it. 
B exposes the complexity of it. 
C understates its impact on society. 
D reduces it to simplistic terms.

Item 91

In Sumner’s view, what is it to be ‘under the dominion of the superstition of government’ (line 7)?

A to be forced to do the government’s bidding
B to be ruled by a government that is afraid to act
C to suspect that the state wants to bring everything under its control
D to believe that governments can and should provide whatever is needed
The following additional information refers to items 92 and 93.

Franklin D. Roosevelt delivered a speech as a U.S. presidential candidate in 1932, during the early years of the Great Depression (1929–1939). Passage 2 is an adapted extract from that speech.

### Passage 2

These unhappy times call for the building of plans that rest upon the forgotten, the unorganised but the indispensable units of economic power, for plans that build from the bottom up and not from the top down, that put their faith once more in the forgotten man at the bottom of the economic pyramid.

5 It is the habit of the unthinking to turn in times like this to the illusions of economic magic. People suggest that a huge expenditure of public funds by various governments will completely solve the unemployment problem. But it is clear that even if we could raise many billions of dollars and find definitely useful public works to spend these billions on, it would only be a stopgap. A real economic cure must go to the killing of the bacteria in the system rather than to the treatment of the external symptoms.

### Item 92

In Roosevelt’s view, the Forgotten Man (lines 1–4) represents those who

- A hold the most realistic economic opinions.
- B are least vulnerable during economic downturns.
- C constitute the basic building blocks of the nation’s economy.
- D helped trigger the Depression through their misguided efforts.

### Item 93

The phrase ‘illusions of economic magic’ (lines 5 and 6) refers to the idea that

- A needful public works should commence immediately.
- B short-term financial aid will provide long-term benefits.
- C governments which produce nothing can provide financial aid.
- D the government should stop spending billions on public works.
Items 94 and 95 refer to both passages.

Item 94

Both passages represent the Forgotten Man as
A an untapped resource.
B needing firm leadership.
C deprived of proper respect.
D at the bottom of the social ladder.

Item 95

The following lines are from a song written in 1932 called *The Poor Forgotten Man*.

Who’s been the backbone of our country?
    It’s the poor forgotten man!
Who always fought for liberty?
    It’s the poor forgotten man!
5 Politicians sing and dance
    Got the poor man in a trance.
    Who gets kicked right in his pants?
    It’s the poor forgotten man!

Judging from Passages 1 and 2, how would Sumner and Roosevelt have responded to this song?
A Sumner would have disagreed with lines 5 and 6, but Roosevelt would have agreed.
B Sumner would have agreed with lines 7 and 8, but Roosevelt would have disagreed.
C Neither Sumner nor Roosevelt would have agreed with lines 3 and 4.
D Both Sumner and Roosevelt would have agreed with lines 1 and 2.
UNIT 21

Items 96–100

This unit deals with Cellular Automata (CAs), which are self-generating patterns of shaded and unshaded cells on a grid. There are lots of different Cellular Automata.

Row 1 of every CA contains unshaded cells and a single shaded cell. New rows are added below this. All rows have infinite extension sideways and downwards. Each row contains shaded and/or unshaded cells.

Figure 1 shows the first four rows of a particular CA, with one cell labelled ‘S’.

![Figure 1](image)

Here is the verbal rule used to generate this CA:

*A cell is shaded when, in the group of three cells immediately above it in the preceding row, there are exactly two unshaded cells.*

To illustrate the application of this rule, the diagram at right shows the shaded cell labelled ‘S’ along with the three cells immediately above it in the preceding row.

![Application of Rule](image)

**Item 96**

Here are the first six rows of a CA:

![First Six Rows of CA](image)

Which of the following is the correct verbal expression of the rule used to generate this CA?

A cell is shaded when, in the group of three cells immediately above it in the preceding row,

A. there are at least two shaded cells or two separated unshaded cells.
B. there are two shaded cells or two separated unshaded cells.
C. there is one shaded cell or two separated shaded cells.
D. there is one unshaded cell or at least one shaded cell.
The following additional information refers to items 97–100.

Any CA rule can be represented diagrammatically as well. A given cell is shown with the three cells immediately above it in the preceding row. For any CA, there are eight possible combinations of shaded and unshaded cells in the upper three cells; for each of these combinations, the lower single cell is either shaded or unshaded according to the rule. The diagram at right shows one of the eight possible combinations for the CA rule represented in Figure 1.

**Item 97**

Here is an example of a particular CA rule expressed diagrammatically:

![Diagram](image)

Which of the following shows a pair of consecutive rows within this CA?

A

B

C

D

**Item 98**

Here are the first five rows of a different CA:

![Diagram](image)

Which of the following groups illustrates part of the rule used to generate this CA?

A

B

C

D
Item 99

The rule for generating another CA is illustrated here:

```
[diagram of CA]
```

The eighth row of this CA is:

```
[diagram of CA]
```

Which of the following shows the seventh row as well as the eighth row?

A

```
[diagram of CA]
```

B

```
[diagram of CA]
```

C

```
[diagram of CA]
```

D

```
[diagram of CA]
```

Item 100

The diagram below shows the first eleven rows of a CA. The pattern of this CA is symmetrical and regular, and it can be assumed that this continues with rows and columns beyond these. The middle column (Column 1) includes the shaded cell of Row 1. Other columns are numbered consecutively to the left and right of Column 1.

```
[diagram of CA]
```

How many shaded cells are there in Row 37 of this CA?

A  36
B  37
C  38
D  39