

Answer Key & Explanations

Academic Reading Paper 19 — Converters, Ants and Survivors

Mark your answer sheet before you read this

HOW TO USE THIS

- Mark one point for each correct answer. Spelling must be correct.
- Convert your total with the band table on the next page.
- Then read the explanation for **every** question you got wrong, and for every one you guessed. The explanation names the mechanism the wrong answer was built on.

The band figure is an estimate. A real paper is pre-tested on thousands of candidates and these have not been, so read the band as a position, not a prediction.

Q	Answer	Code	Mechanism	Where
1	pear-shaped / pear shaped	R	Straight retrieval — no trap	Paragraph 1.
2	air	E1	Synonym substitution, passage keyword parked on a decoy	Paragraphs 1 and 2.
3	twenty / 20	R	Straight retrieval — no trap	Paragraph 1.
4	carbon	A1	Quantity re-attached to another noun	Paragraph 2.
5	rod	R	Straight retrieval — no trap	Paragraph 1.
6	ton	F2	Word limit decides which words are the answer	Paragraph 2.
7	oxygen	E2	Answer sits after its own distractor	Paragraph 5.
8	dolomite	R	Straight retrieval — no trap	Paragraph 7.
9	1879	A7	Time relation reversed	Paragraph 7.
10	TRUE	R	Straight retrieval — no trap	Paragraph 2.
11	FALSE	C1	Overstatement — hedge removed	Paragraph 6.
12	NOT GIVEN	B2	Adjacent proposition on the same subject	Paragraph 5.
13	FALSE	A5	Wrong agent for the action	Paragraph 7.
14	ii	E4	Minimal-pair options	Section A.
15	iii	R	Straight retrieval — no trap	Section B.
16	v	E4	Minimal-pair options	Section C.
17	vi	R	Straight retrieval — no trap	Section D.
18	viii	E4	Minimal-pair options	Section E.
19	ix	R	Straight retrieval — no trap	Section F.
20	x	R	Straight retrieval — no trap	Section G.

Q	Answer	Code	Mechanism	Where
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21	nest / the nest	R	Straight retrieval — no trap	Section A.
22	homeward vector / vector	E1	Synonym substitution, passage keyword parked on a decoy	Section D.
23	systematic search / search	R	Straight retrieval — no trap	Section D.
24	polarised light / polarized light	E4	Minimal-pair options	Section C.
25	A	D1	Statement moved from another paragraph	Section F.
26	A	A6	Direction of change reversed	Section G.
27	NO	C2	The extreme version the writer explicitly refused	Paragraphs 2 and 5.
28	YES	R	Straight retrieval — no trap	Paragraph 3.
29	NOT GIVEN	A2	Scope widened or narrowed by dropping a qualifier	Paragraph 6.
30	NO	B1	Relation swap	Paragraph 7.
31	YES	R	Straight retrieval — no trap	Paragraph 8.
32	A	R	Straight retrieval — no trap	Paragraph 2.
33	B	D1	Statement moved from another paragraph	Paragraph 3.
34	C	R	Straight retrieval — no trap	Paragraph 4.
35	D	C3	A conditional fact stated as universal	Paragraph 5.
36	E	A7	Time relation reversed	Paragraph 6.
37	B	D1	Statement moved from another paragraph	Paragraph 4.
38	C	C2	The extreme version the writer explicitly refused	Paragraph 8.
39	B	E1	Synonym substitution, passage keyword parked on a decoy	Paragraphs 4 and 8.
40	A	C2	The extreme version the writer explicitly refused	Paragraph 7.

Score to band

Raw score out of 40	Estimated band
39–40	9
37–38	8.5
35–36	8
33–34	7.5
30–32	7
27–29	6.5
23–26	6
19–22	5.5
15–18	5
13–14	4.5
10–12	4
8–9	3.5
6–7	3
4–5	2.5

Questions 1–6

1 **pear-shaped** / **pear shaped** · Paragraph 1.

'poured into a **pear-shaped** vessel'.

Mechanism R — Straight retrieval — no trap

2 **air** · Paragraphs 1 and 2.

'cold **air** was blown up through it from below'. *Oxygen* is the word the next paragraph uses for what does the work, and it is not what is blown in.

Mechanism E1 — Synonym substitution, passage keyword parked on a decoy

3 **twenty** / **20** · Paragraph 1.

'made it roar and throw flame for **twenty** minutes'.

Mechanism R — Straight retrieval — no trap

4 **carbon** · Paragraph 2.

'carries several per cent of **carbon** along with silicon and manganese'. The quantity belongs to the carbon; the other two elements are listed after it and take no figure.

Mechanism A1 — Quantity re-attached to another noun

5 **rod** · Paragraph 1.

'stirring the metal with a **rod**'.

Mechanism R — Straight retrieval — no trap

6 **ton** · Paragraph 2.

'sold by the pound, and it became a material for rails and bridges, sold by the **ton**'. The two-word limit leaves room for the whole phrase, which is why the eye reaches for it; the gap wants the unit only.

Mechanism F2 — Word limit decides which words are the answer

Questions 7–9

7 **oxygen** · Paragraph 5.

'The manganese takes up the dissolved **oxygen** and leaves as slag.' Manganese and carbon are both named in the sentence before the answer arrives.

Mechanism E2 — Answer sits after its own distractor

8 **dolomite** · Paragraph 7.

'he lined a converter with burnt **dolomite**'.

Mechanism R — Straight retrieval — no trap

9 **1879** · Paragraph 7.

'The result was announced in **1879**.' 1856 is the year of both the demonstration and Mushet's fix, and the passage says the second fault took twenty-two more years, which is an invitation to arrive at a date by arithmetic instead of reading it.

Mechanism A7 — Time relation reversed

Questions 10–13

10 **TRUE** · Paragraph 2.

'the fuel is not something added to the vessel; it is the impurity already dissolved in the metal'.

Mechanism R — Straight retrieval — no trap

11 **FALSE** · Paragraph 6.

'neither they nor Bessemer knew that the rock was the variable'. His supply happened to be low in phosphorus, which is why his demonstrations worked — the passage is explicit that this was not understood.

Mechanism C1 — Overstatement — hedge removed

12 **NOT GIVEN** · Paragraph 5.

The patent lapsed for non-payment and Bessemer later granted Mushet an annual payment 'under no obligation'. A purchase is never mentioned, and a pension paid voluntarily is not one.

Mechanism B2 — Adjacent proposition on the same subject

13 **FALSE** · Paragraph 7.

Sidney Gilchrist Thomas was the clerk who reasoned it out; Percy Gilchrist was 'a works chemist who could test the idea at scale'. Two people with the same surname, doing different jobs, in one sentence.

Mechanism A5 — Wrong agent for the action

Questions 14–20

14 ii · Section A.

The ant does not retrace its outward path and lays no scent, because 'a pheromone track would evaporate off ground that reaches sixty degrees'. Heading i states the opposite arrangement, which is how most other insects do it.

Mechanism E4 — Minimal-pair options

15 iii · Section B.

Santschi's mirror reversed the direction of the run, establishing the sun as the reference.

Mechanism R — Straight retrieval — no trap

16 v · Section C.

'the ant's compass therefore works when the sun itself cannot be seen'. Heading iv describes the limitation the section exists to remove.

Mechanism E4 — Minimal-pair options

17 vi · Section D.

Displaced ants run the correct bearing *and* the correct distance, then search where the nest should be.

Mechanism R — Straight retrieval — no trap

18 viii · Section E.

Stilted ants overshot and shortened ants undershot: 'Both groups had run the right number of steps, and the wrong distance.' Heading vii is the conclusion the experiment rules out.

Mechanism E4 — Minimal-pair options

19 ix · Section F.

'small errors in every segment accumulate along the way' — the vector delivers the ant to a region, not a point.

Mechanism R — Straight retrieval — no trap

20 x · Section G.

'the sky gives a bearing, the legs give a distance, and the surroundings give the final few metres'.

Mechanism R — Straight retrieval — no trap

Questions 21–24

21 nest / the nest · Section A.

'the **nest**, which is a hole a few millimetres across in an otherwise featureless plain'.

Mechanism R — Straight retrieval — no trap

22 **homeward vector / vector** · Section D.

'holds the running total as a single homeward **vector**'. *Path integration* and *dead reckoning* are in the same sentence, but they name the process, not the quantity the diagram is pointing at.

Mechanism E1 — Synonym substitution, passage keyword parked on a decoy

23 **systematic search / search** · Section D.

'begins a systematic **search** of loops around that point'.

Mechanism R — Straight retrieval — no trap

24 **polarised light / polarized light** · Section C.

'What it reads is the pattern of **polarised light** across the sky'. *Sunlight* is what Section B established and is not what a covered sky provides.

Mechanism E4 — Minimal-pair options

Questions 25–26

25 **A** · Section F.

'Ants fitted with stilts before the outward journey, so that they used the same legs in both directions, went home correctly, which is the control the result needed.' B, C and D are all built from the passage's vocabulary and none of them is stated.

Mechanism D1 — Statement moved from another paragraph

26 **A** · Section G.

'an experimenter who moves nearby landmarks can shift the search centre by the same amount'. B keeps the mechanism and reverses its direction, which is the commonest way to lose this mark.

Mechanism A6 — Direction of change reversed

Questions 27–31

27 NO · Paragraphs 2 and 5.

That is the replacement account, which the passage sets out in order to reject: 'the persistence is information rather than inertia'.

Mechanism C2 — The extreme version the writer explicitly refused

28 YES · Paragraph 3.

'the great majority of old technologies did die, and they died because the replacement was in fact better at the thing they were for'.

Mechanism R — Straight retrieval — no trap

29 NOT GIVEN · Paragraph 6.

The passage says sailing ships reached their own greatest speeds after steam arrived. It never compares the two against each other, and improving is not the same claim as winning.

Mechanism A2 — Scope widened or narrowed by dropping a qualifier

30 NO · Paragraph 7.

'the person defending it is usually not making the argument above; they are making the sentimental one and hoping it will pass'.

Mechanism B1 — Relation swap

31 YES · Paragraph 8.

'Old is not a reason to keep and it is not a reason to discard.'

Mechanism R — Straight retrieval — no trap

Questions 32–36

32 A · Paragraph 2.

'anything that lingers is doing so out of habit, sentiment or institutional stupidity'.

Mechanism R — Straight retrieval — no trap

33 B · Paragraph 3.

'Anyone defending the general claim has to explain the gaslight, the telegraph and the horse.'
Ending G states that general claim rather than the cost of making it.

Mechanism D1 — Statement moved from another paragraph

34 C · Paragraph 4.

'not because sailors distrust satellites but because paper does not stop working when the power does'. Ending F is the reason the sentence explicitly rules out.

Mechanism R — Straight retrieval — no trap

35 D · Paragraph 5.

'a fact about signatures and legal recognition, not about telecommunications' — and the passage is careful that this is true of some countries and not others.

Mechanism C3 — A conditional fact stated as universal

36 E · Paragraph 6.

'after steam was already established'. Ending H reverses the time relation, which is the whole surprise of the paragraph.

Mechanism A7 — Time relation reversed

Questions 37–40

37 B · Paragraph 4.

'which is the case the lorry was never optimised for'. A and D take that sentence and push it into claims the passage does not make.

Mechanism D1 — Statement moved from another paragraph

38 C · Paragraph 8.

'treating the age of a technology as evidence about its value in either direction' is named as the general form of the mistake. A, B and D are all positions the passage holds.

Mechanism C2 — The extreme version the writer explicitly refused

39 B · Paragraphs 4 and 8.

'the niche is defined by a requirement nobody thought to write down', and 'is usually written down nowhere'. C is contradicted in the same sentence as the answer.

Mechanism E1 — Synonym substitution, passage keyword parked on a decoy

40 A · Paragraph 7.

'The point is about what to do before replacing something, which is to find out what the old arrangement was actually doing.' B and C are the two extremes the passage declines; D is something the passage says, but it is an observation, not the advice.

Mechanism C2 — The extreme version the writer explicitly refused