GATE General Aptitude

Sample Paper – 7

Duration: 28 Minutes **Maximum Marks: 15**

Instructions

- This paper contains **10** questions, modelled on the General Aptitude section of **GATE** conducted by the IITs and IISc.
- The **10-question** length and the **15-mark** total match the General Aptitude section of the real 65-question paper exactly: **5 questions of 1 mark** (Q1–Q5) and **5 questions of 2 marks** (Q6–Q10).
- Each question carries **negative marking of one-third of its allotted marks**: a wrong 1-mark question costs **0.33** and a wrong 2-mark question costs **0.67**. Unattempted questions carry no penalty.
- Every question here is a **Multiple Choice Question** with exactly one correct option. The real GA section may also include Multiple Select Questions (MSQ) and Numerical Answer Type (NAT) questions, and **those two types carry no negative marking** – never leave a NAT blank.
- Attempt this practice paper in one timed sitting of about **28 minutes**, the share this section earns at the paper's overall pace of 180 minutes for 65 questions.

Verbal Aptitude

Q1. Select the option that fills both blanks correctly.

If the load test _____ on the girder last year, the fatigue crack _____ long before the span was opened to traffic. **[1 mark]**

(A) had been conducted; would have been detected

(B) was conducted; would be detected

(C) had been conducted; will be detected

(D) would have been conducted; had been detected

Q2. Read the passage below.

In 2019 the city utility replaced every mechanical water meter in its eastern zone with a digital one. Recorded consumption in that zone rose by 14 percent within a year. No new housing was built in the zone during that year and the resident count stayed flat. The utility's own audit later reported that the old mechanical meters routinely under-registered flow whenever line pressure was low.

Which one of the following can be **inferred** from the passage, though it is not stated in it? [1 mark]

(A) The eastern zone gained a large number of new residents after 2019.

(B) Digital meters over-register flow when line pressure is low.

(C) Water use in the eastern zone was already higher than the old meters had been reporting.

(D) The utility replaced the meters in order to raise its billing revenue.

Q3. In the pair **Drought : Famine**, the first word names a **cause** and the second names its **effect**, in that order. Which one of the following pairs shares the same cause-and-effect relationship, in the same order? [1 mark]

(A) Frost : Crop failure

(B) Surgeon : Scalpel

(C) Petal : Flower

(D) Sabre : Sword

Quantitative Aptitude

Q4. Four bells in a plant sound at intervals of **6**, **8**, **12** and **18** seconds respectively. They all sound together at exactly 9:00 a.m. In the one hour that follows, and **not** counting the 9:00 a.m. sounding itself, the number of times all four bells sound together is: [1 mark]

(A) 1800

(B) 50

(C) 51

(D) 72

Q5. P starts a workshop with Rs. 50,000. Q joins with Rs. 80,000 and R joins with Rs. 60,000. Over the financial year, P's money stays in the business for **12** months, Q's for **6** months and R's for **10** months. The year's profit of Rs. 84,000 is divided in proportion to capital × time. Q's share is: [1 mark]

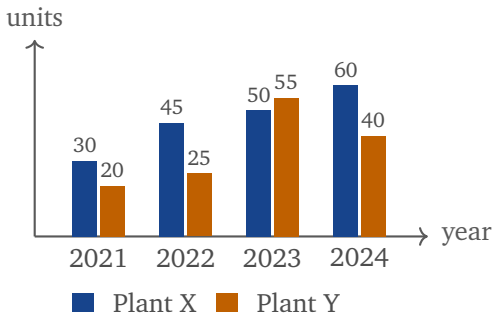
(A) Rs. 18,000

(B) Rs. 28,000

(C) Rs. 24,000

(D) Rs. 30,000

Q6. The bar chart below compares the annual output, in units, of two plants **X** and **Y** over four years. The difference between the **four-year total** of Plant X and the **four-year total** of Plant Y is: [2 marks]



(A) 5

(B) 50

(C) 55

(D) 45

Analytical Aptitude

Q7. Five engineers – Kiran, Latha, Manoj, Nisha and Omkar – wrote the same test and no two of them scored the same marks.

I. Manoj scored higher than Kiran but lower than Nisha.

II. Omkar scored lower than Kiran.
III. Latha scored higher than Nisha.

The engineer with the **third highest** score is: [2 marks]

(A) Kiran

(B) Nisha

(C) Latha

(D) Manoj

Q8. Read the statement below.

Statement: The institute has advised all candidates to reach the examination centre at least 90 minutes before the announced start time of the paper.

Which one of the following is an **assumption implicit** in the statement? [2 marks]

(A) No candidate would reach the centre in time unless the institute advised them to.

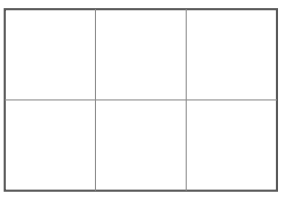
(B) The entry formalities at the centre take up a considerable amount of time.

(C) The paper will actually begin later than the announced start time.

(D) Every candidate lives within 90 minutes of travel from the allotted centre.

Spatial Aptitude

Q9. The figure below is a rectangle divided by grid lines into equal unit squares. Counting squares of **every** size, and counting only squares (not rectangles), the number of squares embedded in the figure is: [2 marks]



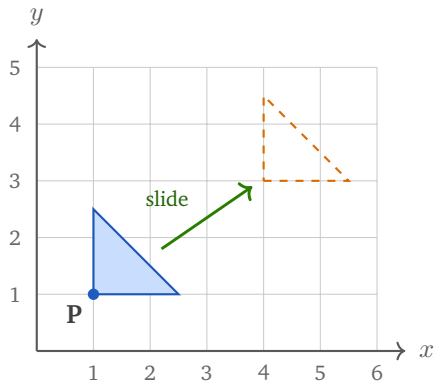
(A) 6

(B) 8

(C) 7

(D) 18

Q10. The shaded triangle below is **translated**, that is slid across the grid **without any rotation or flip**, by **3 units to the right and 2 units up**. Its new position is shown by the dashed outline. The marked point **P** of the original triangle ends up at the coordinates: **[2 marks]**



(A) $(4, 3)$

(B) $(3, 2)$

(C) $(-2, -1)$

(D) $(2, 4)$

Detailed Solutions

Q1.

Solution

Concept – a conditional sentence has a fixed pairing between the if-clause and the main clause: Decide which of the three conditional types the sentence is, and the two verb forms follow automatically. The if-clause never carries *would*.

Step 1 – read the time reference: The sentence says *last year*, and it also says the span *was* opened to traffic. Both are finished past events.

Step 2 – read the truth value: The crack was not detected early, and the test was not conducted. The sentence is describing a past event that did **not** happen and its imagined past consequence.

Step 3 – name the type: An unreal situation in the past is the **third conditional**.

Step 4 – recall the third conditional pattern: If + past perfect . . ., would have + past participle.

Step 5 – fill the first blank: The if-clause needs the past perfect. In the passive that is **had been conducted**.

Step 6 – fill the second blank: The main clause needs *would have* + past participle. In the passive that is **would have been detected**.

Step 7 – read the completed sentence back: "If the load test **had been conducted** on the girder last year, the fatigue crack **would have been detected** long before the span was opened to traffic." This is option A.

Why the other options are wrong:

- B, "was conducted; would be detected": is the second conditional pattern bent onto a past frame. *Would be detected* points at a present or future outcome, which clashes with *last year* and with the span having already opened.
- C, "had been conducted; will be detected": mixes a past perfect if-clause with a plain future main clause. *Will* states a real future outcome, but the crack's discovery is a lost past possibility, not something still to come.
- D, "would have been conducted; had been detected": puts the two halves the wrong way round. This is the classic error of pushing *would* into the if-clause. In English, *would* belongs in the main clause and never inside *if*.

Final Answer: had been conducted; would have been detected ⇒ A

Answer: (A) Go Back to Q1

Q2.

Solution

Concept – an inference is a conclusion the passage forces but never spells out: It must be supported by every fact given, yet it must not simply repeat a sentence from the passage. Anything that needs an extra fact from outside is not an inference.

Step 1 – list what the passage actually states: The meters were swapped in 2019. Recorded consumption then rose 14 percent. No new housing was built. The resident count stayed flat. The old meters under-registered flow at low pressure.

Step 2 – ask what could explain the 14 percent rise: A recorded figure can rise for two reasons only: more water is being used, or the same water is being measured better.

Step 3 – rule out the first explanation: More water would need more users or more premises. The passage closes both doors: no new housing, and a flat resident count.

Step 4 – accept the second explanation: That leaves better measurement. The audit line supplies the mechanism: the old meters under-registered, so they reported less water than was really flowing.

Step 5 – state the unstated conclusion: If the old meters were reporting less than the true flow, then the real water use in the zone was **already** higher than the old readings showed, even before 2019. The 14 percent is the measurement catching up, not the consumption climbing.

Step 6 – confirm it is an inference and not a restatement: The passage never says the old figures were too low for the zone as a whole. It only says the meters under-register at low pressure. Joining that to the flat population is the reader's step, which is exactly what an inference is. This is option C.

Why the other options are wrong:

- A, new residents after 2019: directly **contradicts** the passage, which says the resident count stayed flat and no new housing was built.
- B, digital meters over-register at low pressure: reverses the audit finding. The audit blames the **old mechanical** meters for under-registering. Nothing is said about the digital meters being inaccurate in the other direction. This distractor encodes the assumption that the new reading must be the wrong one.
- D, the utility acted to raise revenue: attributes a **motive**. The passage reports a swap and an audit, and gives no reason for the swap at all. A motive can

never be inferred from an outcome alone.

Final Answer: Water use was already higher than the old meters reported $\Rightarrow$ C

Answer: (C) Go Back to Q2

Q3.

Solution

Concept – when the relationship is named for you, the whole task is to test each option against that one named link: Do not settle for a pair that is merely "related". It must be related in the **same way** and in the **same order**.

Step 1 – restate the given link as a sentence: Drought **causes** famine. Word 1 is the cause, word 2 is the effect.

Step 2 – fix the test sentence: For each option, ask: does word 1 cause word 2? A yes on that exact sentence is the only pass.

Step 3 – test option A: Does frost cause crop failure? Yes. A hard frost kills standing crops, and the crop failure is the result. Word 1 is the cause and word 2 is the effect, in the same order as the given pair. It passes.

Step 4 – test option B: Does a surgeon cause a scalpel? No. A surgeon **uses** a scalpel. The link is user and tool.

Step 5 – test option C: Does a petal cause a flower? No. A petal is **a piece of** a flower. The link is part and whole.

Step 6 – test option D: Does a sabre cause a sword? No. A sabre **is a kind of** sword. The link is type and category.

Step 7 – conclude: Only option A survives the test sentence, and its order matches too.

Why the other options are wrong:

- B, Surgeon : Scalpel: encodes a **tool/user** relationship, which the question explicitly names as one of the rival links, not the one being asked for.
- C, Petal : Flower: encodes a **part/whole** relationship. It is the second rival link named in the question stem.
- D, Sabre : Sword: is a **type/category** pair, and it also runs from the narrow item to the broad one. Even if it were a cause and effect pair, the order would be wrong.

Final Answer: Frost : Crop failure $\Rightarrow$ A

Answer: (A) Go Back to Q3

Q4.

Solution

Concept – events that repeat on fixed cycles coincide at multiples of the LCM of the cycles: The LCM is the first instant that is a whole number of cycles for every one of them at once. HCF answers a different question, that of splitting into equal groups, and has no role here.

Step 1 – write each interval as a product of primes: $6 = 2 \times 3$

$8 = 2^3$

$12 = 2^2 \times 3$

$18 = 2 \times 3^2$

Step 2 – take the highest power of each prime: Highest power of 2 across the four numbers $= 2^3 = 8$

Highest power of 3 across the four numbers $= 3^2 = 9$

Step 3 – multiply to get the LCM: LCM $= 8 \times 9 = 72$

Step 4 – state what the LCM means here: All four bells sound together once every **72 seconds**.

Step 5 – convert the one hour into seconds: 1 hour $= 60 \times 60 = 3600$ seconds

Step 6 – count the coincidences in that window: Number of coincidences $= \frac{3600}{72} = 50$

Step 7 – deal with the endpoint carefully: The joint soundings after 9:00 a.m. occur at 72 s, 144 s, . . ., up to 3600 s. That is 50 soundings, and 3600 s is exactly 10:00 a.m., so the last one falls inside the hour. The 9:00 a.m. sounding at $t = 0$ is excluded by the question. So the count stays **50**.

Why the other options are wrong:

- A, 1800: comes from using the **HCF** instead of the LCM. HCF$(6, 8, 12, 18) = 2$, and $3600/2 = 1800$. The HCF would be the answer to a cutting-into-equal-parts question, not a coinciding-cycles question.
- C, 51: is the fence-post error. It adds back the 9:00 a.m. sounding at $t = 0$, which the question expressly told you not to count.
- D, 72: quotes the LCM itself. But 72 is a **time in seconds**, the gap between coincidences. It is not a count of coincidences.

Final Answer: 50 $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q4

Q5.

Solution

Concept – in a partnership where the partners stay in for unequal periods, profit follows capital $\times$ time: The product capital $\times$ time is called the monthly equivalent capital. Two partners with the same rupees but different durations do **not** earn the same share.

Step 1 – compute P's capital $\times$ time: $= 50{,}000 \times 12$

$= 6{,}00{,}000$

Step 2 – compute Q's capital $\times$ time: $= 80{,}000 \times 6$

$= 4{,}80{,}000$

Step 3 – compute R's capital $\times$ time: $= 60{,}000 \times 10$

$= 6{,}00{,}000$

Step 4 – form the ratio: $\text{P} : \text{Q} : \text{R} = 6{,}00{,}000 : 4{,}80{,}000 : 6{,}00{,}000$

Step 5 – reduce the ratio: Divide every term by $1{,}20{,}000$:

$\text{P} : \text{Q} : \text{R} = 5 : 4 : 5$

Step 6 – add the ratio parts: Total parts $= 5 + 4 + 5 = 14$

Step 7 – find the value of one part: One part $= \dfrac{84{,}000}{14} = 6{,}000$

Step 8 – find Q's share: Q's share $= 4 \times 6{,}000$

$=$ Rs. $24{,}000$

Step 9 – check the whole split: $\text{P} = 5 \times 6{,}000 = 30{,}000$; $\text{Q} = 24{,}000$; $\text{R} = 5 \times 6{,}000 = 30{,}000$.

Total $= 30{,}000 + 24{,}000 + 30{,}000 = 84{,}000$, which matches the profit. The split is consistent.

Step 10 – sanity check the surprise: Q brought the **most** money, Rs. 80,000, yet earns the **least**. That is correct, because Q's money worked for only 6 months. Half the duration cancels a good part of the larger capital.

Why the other options are wrong:

- A, Rs. 18,000: uses the **time ratio alone**, $12 : 6 : 10 = 6 : 3 : 5$, giving Q $= \frac{3}{14} \times 84{,}000 = 18{,}000$. It throws away the capital, which is half the rule.
- B, Rs. 28,000: is a plain **three-way equal split**, $84{,}000/3$. It ignores both capital and time, and would be right only if all three partners had identical products.
- D, Rs. 30,000: is a correctly computed share, but it belongs to **P and to R**, not to Q. It catches anyone who reduces the ratio properly and then reads

off the wrong ratio term.

Final Answer: Rs. 24,000 $\Rightarrow$ C

Answer: (C) Go Back to Q5

Q6.

Solution

Concept – a two-series chart rewards totalling each series first and comparing once at the end: Do not compare year by year and then try to patch the results together. Sum each series over the full window, then subtract the two sums.

Step 1 – read Plant X off the chart, year by year: 2021: 30 2022: 45 2023: 50 2024: 60

Step 2 – read Plant Y off the chart, year by year: 2021: 20 2022: 25 2023: 55 2024: 40

Step 3 – total Plant X, one addition per line: $30 + 45 = 75$

$75 + 50 = 125$

$125 + 60 = 185$

So Plant X total $= 185$ units.

Step 4 – total Plant Y, one addition per line: $20 + 25 = 45$

$45 + 55 = 100$

$100 + 40 = 140$

So Plant Y total $= 140$ units.

Step 5 – subtract the two totals: Difference $= 185 - 140$

$= 45$ units

Step 6 – verify by the year-by-year route: Signed gaps, X minus Y:

2021: $30 - 20 = +10$

2022: $45 - 25 = +20$

2023: $50 - 55 = -5$

2024: $60 - 40 = +20$

Sum of signed gaps $= 10 + 20 - 5 + 20 = 45$. This matches Step 5, which confirms the reading.

Step 7 – note the one year that reverses: 2023 is the only year in which Plant Y beats Plant X. Its gap of 5 must be carried with a **minus** sign. That single sign is what the distractors are built around.

Why the other options are wrong:

- A, 5: is the gap in **2023 alone**. It answers a single-year question when the stem asked for four-year totals.
- B, 50: drops the 2023 year entirely and adds only the years where X led: $10 + 20 + 20 = 50$. It treats an unfavourable year as if it did not exist.
- C, 55: adds the 2023 gap instead of subtracting it: $10 + 20 + 5 + 20 = 55$. This is the sign error, the most common mistake on two-series charts where the lead changes hands.

Final Answer: 45 units $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q6

Q7.

Solution

Concept – a ranking puzzle is solved by chaining the clues into one line, not by testing the options: Write every clue as an inequality with a common symbol, then link the chains where they share a name.

Step 1 – write clue I as an inequality: "Manoj scored higher than Kiran but lower than Nisha" gives two facts at once:

Nisha $>$ Manoj $>$ Kiran

Step 2 – write clue II as an inequality: Kiran $>$ Omkar

Step 3 – write clue III as an inequality: Latha $>$ Nisha

Step 4 – join clue II to the chain from Step 1: The two chains share Kiran, and Kiran is at the bottom of Step 1 and at the top of Step 2. So they link directly:

Nisha $>$ Manoj $>$ Kiran $>$ Omkar

Step 5 – join clue III to that chain: The chains share Nisha, and Nisha sits at the top of Step 4 while Latha sits above her. So Latha goes on the front:

Latha $>$ Nisha $>$ Manoj $>$ Kiran $>$ Omkar

Step 6 – check the chain is complete: All five names appear, each exactly once, and no two are tied. The order is fully determined, so there is a unique answer.

Step 7 – rank from the top: 1st: Latha

2nd: Nisha

3rd: Manoj

4th: Kiran

5th: Omkar

Step 8 – read off what was asked: The third highest score belongs to **Manoj**.

Why the other options are wrong:

- A, Kiran: is **fourth**, not third. This is the answer you reach if you count from the bottom by mistake, or if you overlook clue III and leave Latha out of the chain.
- B, Nisha: is **second**. She is above Manoj by clue I and below Latha by clue III, so she cannot be third.
- C, Latha: is **first**. Clue III puts her above Nisha, who is already above the whole rest of the chain, so nothing outranks her.

Final Answer: Manoj $\Rightarrow$ D

Answer: (D) Go Back to Q7

Q8.

Solution

Concept – an implicit assumption is something the speaker must already be taking for granted for the statement to make sense: Test each candidate by the negation test. Negate the candidate, and if the statement then collapses into non-sense, the candidate was an assumption. If the statement survives the negation, it was not.

Step 1 – separate the statement into its parts: The action advised is arriving 90 minutes early. The reference point is the announced start time of the paper. The advice is aimed at all candidates.

Step 2 – ask what the advice is for: Nobody is asked to wait 90 minutes for no reason. The advice only has a point if something has to happen in that 90-minute window before the paper starts.

Step 3 – name that something: At an exam centre, the pre-paper work is document checking, frisking, biometric capture and seating. The institute must be taking it for granted that this work eats a large slice of time.

Step 4 – apply the negation test to option B: Negate it: entry formalities take almost no time. Then there is no reason at all to ask anyone to come 90 minutes early, and the advisory becomes pointless. The statement collapses, so option B **is** an implicit assumption.

Step 5 – apply the negation test to option A: Negate it: some candidates would reach in time even without the advisory. The institute can still sensibly issue the

advisory, because advice is normally aimed at the whole group regardless. The statement survives, so A is not assumed.

Step 6 – apply the negation test to option C: Negate it: the paper will begin exactly at the announced time. The advisory still makes perfect sense, and in fact makes **more** sense, because a punctual start is precisely why you need the buffer. The statement survives, so C is not assumed.

Step 7 – apply the negation test to option D: Negate it: some candidates live more than 90 minutes away. The advisory is unaffected, because it is about arriving 90 minutes before the start, not about how long the journey takes. The statement survives, so D is not assumed.

Step 8 – conclude: Only option B fails the negation test, so only B is implicit.

Why the other options are wrong:

- A: is far too **strong**. It reads "advised all candidates" as "no candidate can manage without being advised". An advisory addressed to everyone does not assume that everyone would otherwise fail.
- C: **contradicts** the statement. The advisory is measured from the announced start time and would be self-defeating if that time were not the real one. An assumption can never work against the statement it sits under.
- D: is **irrelevant** to the advice. The advisory fixes an arrival instant relative to the paper. Where candidates live and how far they travel are outside its scope entirely.

Final Answer: The entry formalities take a considerable amount of time $\Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q8

Q9.

Solution

Concept – to count embedded squares, count by size and never by eye: Fix a size, sweep the whole grid for squares of that size only, then move to the next size. Counting by eye guarantees a miss, because the larger squares hide inside the smaller ones.

Step 1 – describe the grid: The rectangle is cut by two vertical lines and one horizontal line. That makes a grid **3 units wide** and **2 units tall**.

Step 2 – list the possible square sizes: A square of side k needs k units of width and k units of height. The grid is only 2 units tall, so k can be 1 or 2 and nothing more. A 3×3 square will not fit vertically.

Step 3 – count the 1×1 squares: A 1×1 square can start at 3 positions across and 2 positions up.

Count $= 3 \times 2 = 6$

Step 4 – count the 2×2 squares: A 2×2 square needs 2 columns and 2 rows. Across, its left edge can sit at column 1 or column 2, so 2 positions. Up, it must use both rows, so 1 position only.

Count $= 2 \times 1 = 2$

Step 5 – name the two 2×2 squares explicitly: One occupies the left two columns. The other occupies the right two columns. They overlap in the middle column, which is allowed, because they are two different squares.

Step 6 – add up: Total $= 6 + 2$

$= 8$

Step 7 – check the whole rectangle: The outer figure is 3×2. Its sides are unequal, so it is a rectangle and **not** a square. It must not be added.

Why the other options are wrong:

- A, 6: counts only the **unit** squares and stops. It is the answer of anyone who forgets that larger squares are also embedded in the figure.
- C, 7: finds the 6 unit squares and only **one** of the two 2×2 squares. It comes from assuming the two larger squares cannot overlap in the middle column, which is not a real restriction.
- D, 18: counts all **rectangles** rather than squares. Choosing 2 of the 4 vertical lines and 2 of the 3 horizontal lines gives $\binom{4}{2} \times \binom{3}{2} = 6 \times 3 = 18$ rectangles. The stem ruled that out explicitly.

Final Answer: $8 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q9

Q10.

Solution

Concept – a translation adds the same fixed vector to every point of the shape: Nothing turns, nothing flips, nothing changes size. So you can ignore the shape completely and just move the one point you care about.

Step 1 – read the starting coordinates of P: The marked point P sits on the grid at $x = 1$ and $y = 2 - 1 = 1$. So P is at $(1, 1)$.

Step 2 – write the translation as a vector: "3 units to the right" acts on x, so it

is $+3$.

"2 units up" acts on y, so it is $+2$.

The vector is $(+3,\ +2)$.

Step 3 – apply the vector to the x-coordinate: New $x = 1 + 3$

$= 4$

Step 4 – apply the vector to the y-coordinate: New $y = 1 + 2$

$= 3$

Step 5 – state the image of P: P lands at $(4,\ 3)$.

Step 6 – check against the dashed outline: The original triangle has vertices $(1, 1)$, $(2.5, 1)$ and $(1, 2.5)$, with P at the right-angled corner $(1, 1)$. Adding $(+3, +2)$ to each vertex gives $(4, 3)$, $(5.5, 3)$ and $(4, 4.5)$, which is exactly the dashed triangle drawn in the figure. So the dashed outline confirms the arithmetic.

Step 7 – confirm the corner is the right one: Because there is no rotation and no flip, the right-angled corner of the image must still be the bottom-left corner. In the dashed triangle that corner is $(4,\ 3)$, which is where P must be.

Why the other options are wrong:

- B, $(3,\ 2)$: quotes the **translation vector itself** rather than the destination. The vector says how far to move, not where you end up. You still have to add it to the starting point.
- C, $(-2,\ -1)$: **subtracts** the vector instead of adding it: $(1 - 3,\ 1 - 2)$. That would be a slide 3 units left and 2 units down, the reverse of what was asked, and it would push the triangle off the grid entirely.
- D, $(2,\ 4)$: **swaps** the two components of the vector, adding 2 to x and 3 to y wrongly as $(1 + 1,\ 1 + 3)$. Mixing up which component acts on x and which on y is the standard slip in translation questions.

Final Answer: $(4,\ 3) \Rightarrow$ A

Answer: (A) Go Back to Q10

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	C	3	A	4	B	5	C
6	D	7	D	8	B	9	B	10	A