GATE General Aptitude

Sample Paper – 10

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. Choose the correct **reported speech** form of the sentence below.

The site engineer said, "I am checking the load readings today." **[1 mark]**

(A) The site engineer said that he was checking the load readings that day.

(B) The site engineer said that he is checking the load readings today.

(C) The site engineer said that he was checking the load readings today.

(D) The site engineer said that he had been checking the load readings that day.

Q2. In the sentence below, what does the idiom **cut corners** mean?

The contractor *cut corners* on the foundation work, and cracks appeared within a year. **[1 mark]**

(A) Shaped the structure with sharp angled edges

(B) Worked extra hours to finish ahead of schedule

(C) Followed the specification down to the last detail

(D) Took shortcuts that lowered quality in order to save time or money

Q3. Choose the option that **best replaces** the underlined portion so that the sentence becomes grammatically correct.

The project manager, along with her two assistants, are attending the review meeting tomorrow. **[1 mark]**

(A) is attending

(B) are attend

(C) have been attending

(D) No improvement required

Quantitative Aptitude

Q4. A laboratory has 30 litres of a solution that is **20% acid**. It is to be mixed with a solution that is **50% acid** so that the final mixture is **30% acid**. Using the alligation rule, the volume of the 50% solution required is: **[1 mark]**

(A) 10 litres

(B) 30 litres

(C) 60 litres

(D) 15 litres

Q5. The remainder when 2^{51} is divided by 7 is: **[1 mark]**

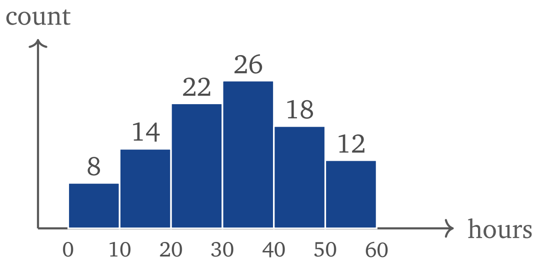
(A) 0

(B) 1

(C) 2

(D) 4

Q6. The histogram below shows the lifetime, in hours, of 100 tested components grouped into six class intervals. Each bar gives the number of components falling in that interval. **By combining the relevant class intervals**, find the percentage of components whose lifetime is **at least 30 hours**. [2 marks]



(A) 44%

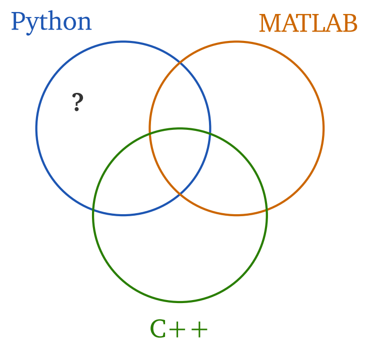
(B) 30%

(C) 56%

(D) 26%

Analytical Aptitude

Q7. In a batch of trainees, **60** study Python, **55** study MATLAB and **45** study C++. Further, **20** study both Python and MATLAB, **22** study both Python and C++, **18** study both MATLAB and C++, and **10** study all three languages. Each of these pairwise figures *includes* the trainees who study all three. The number of trainees who study **Python only** (the shaded region marked **?** below) is: [2 marks]



(A) 28

(B) 38

(C) 18

(D) 30

Q8. In a certain code each letter is replaced by its position in the English alphabet, so that A $= 1$, B $= 2$, and so on up to Z $= 26$. **Decode** the numeric string **3–1–2–12–5** back into a word. The word is: [2 marks]

(A) CABIN

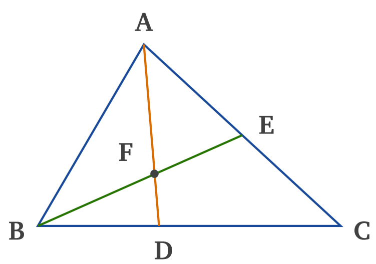
(B) CABLE

(C) CALIBRE

(D) CANDLE

Spatial Aptitude

Q9. In the composite figure below, AD and BE are two straight lines drawn inside triangle ABC, meeting at F. Point D lies on BC and point E lies on AC. The total number of triangles in the figure is: [2 marks]



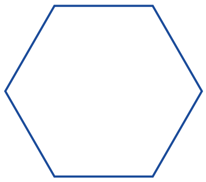
(A) 6

(B) 7

(C) 8

(D) 9

Q10. The figure below is a **regular hexagon.** The number of axes of symmetry (lines of symmetry) it has is: **[2 marks]**



regular hexagon

(A) 3

(B) 6

(C) 2

(D) 12

Detailed Solutions

Q1.

Solution

Concept – reported speech changes three things at once: The tense shifts one step back, the pronouns shift to the reporter's point of view, and the time and place words shift away from the moment of speaking. All three must change together.

Step 1 – check the reporting verb: The reporting verb is *said*, which is in the **past** tense. A past reporting verb triggers the backshift, so every change below is required.

Step 2 – backshift the tense: The direct speech has *am checking*, which is present continuous.

Present continuous $\rightarrow$ past continuous.

So *am checking* $\rightarrow$ **was checking**.

Step 3 – shift the pronoun: The direct speech has *I*, spoken by the site engineer.

Reported by someone else, *I* $\rightarrow$ **he**.

Step 4 – shift the time word: The direct speech has *today*, which is measured from the moment of speaking.

In reported speech, *today* $\rightarrow$ **that day**.

Step 5 – assemble the sentence: Reporting verb + *that* + shifted clause gives:

"The site engineer said that he was checking the load readings that day."

Step 6 – verify all three shifts are present: Tense shifted (was checking), pronoun shifted (he), time word shifted (that day). Only option A carries all three.

Why the other options are wrong:

- B, "he is checking ... today": performs **no** backshift at all. It keeps the present tense *is* and the unshifted time word *today*, which contradicts the past reporting verb *said*.
- C, "he was checking ... today": backshifts the tense correctly but **forgets the time word**. Mixing the past *was* with the present-anchored *today* is the most common half-done error in this question type.
- D, "he had been checking ... that day": backshifts **too far**. Past perfect continuous is the reported form of the *past* continuous ("I was checking"), not of the *present* continuous. Each tense moves exactly one step back, never two.

Final Answer: Option A $\Rightarrow \boxed{A}$

Answer: (A) Go Back to Q1

Q2.

Solution

Concept – an idiom never means the sum of its words: *Cut* and *corners* tell you nothing on their own. Read the whole phrase as one unit, then use the rest of the sentence to confirm the meaning.

Step 1 – state the idiom's fixed meaning: *To cut corners* means to do a job in the cheapest or quickest way available, skipping proper steps, and thereby ending up with poorer quality.

Step 2 – test the meaning against the sentence: The sentence says the contractor cut corners on the foundation work **and cracks appeared within a year**. The result clause reports a defect, so the idiom must describe something that *damaged* quality.

Step 3 – use the clue word "contractor": A contractor saves money by using less cement, thinner reinforcement, or fewer curing days. Every one of those is a shortcut that trades quality for cost. This matches Step 1 exactly.

Step 4 – match to an option: "Took shortcuts that lowered quality in order to save time or money" restates Step 1 word for word. That is option D.

Why the other options are wrong:

- A, "shaped the structure with sharp angled edges": is the **literal** reading of *cut* plus *corners*. This is the standard trap in every idiom question. If the literal reading worked, the phrase would not be an idiom.
- B, "worked extra hours to finish ahead of schedule": is a **positive** action, but the sentence ends with cracks. A meaning that praises the contractor cannot sit in front of *and cracks appeared*.
- C, "followed the specification down to the last detail": is the exact **opposite** of the idiom. Following the specification fully is precisely what the contractor failed to do.

Final Answer: Took shortcuts that lowered quality $\Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q2

Q3.

Solution

Concept – an intervening phrase does not change the subject: Phrases such as *along with*, *as well as*, *together with*, *in addition to* and *besides* are **not** conjunctions. They add information about the subject but they do not join a second subject to it, so the verb still agrees with the original subject alone.

Step 1 – strip out the intervening phrase: Remove ", along with her two assistants," from the sentence. What remains is:

"The project manager _______ attending the review meeting tomorrow."

Step 2 – identify the true subject: The subject is *The project manager*, which is **singular**.

Step 3 – pick the agreeing verb: A singular subject takes the singular verb *is*, not the plural *are*.

So the correct form is **is attending**.

Step 4 – check the tense is preserved: The sentence has *tomorrow*, so it needs the present continuous used for a fixed future arrangement: "is attending ... tomorrow". This is correct English and no other tense is needed.

Step 5 – read the improved sentence back: "The project manager, along with her two assistants, is attending the review meeting tomorrow." The agreement and the tense both hold, so option A is the required replacement.

Why the other options are wrong:

- B, "are attend": keeps the wrong plural verb and then breaks the sentence further. *Are* must be followed by the *-ing* form, so "are attend" is not a valid verb phrase at all.
- C, "have been attending": is present perfect continuous, which describes an action already running. It cannot be paired with the future marker *tomorrow*, and it is plural, so it repeats the original agreement error.
- D, "No improvement required": encodes the exact misconception being tested, that *along with her two assistants* makes the subject plural. It does not. Only *and* can join two subjects into a plural one.

Final Answer: is attending $\Rightarrow \boxed{\text{A}}$

Answer: (A) **Go Back to Q3**

Q4.

Solution

Concept – the alligation rule: When two solutions of concentrations c_1 and c_2 are mixed to give a mean concentration c_m, the quantities mix in the ratio

$$\text{Quantity of } c_1 : \text{Quantity of } c_2 = (c_2 - c_m) : (c_m - c_1)$$

Each quantity is paired with the difference taken on the **far** side of the mean. This cross pairing is the whole rule, and reversing it is the classic error.

Step 1 – write down the three concentrations: Cheaper (weaker) solution: $c_1 = 20\%$

Dearer (stronger) solution: $c_2 = 50\%$

Mean required: $c_m = 30\%$

Step 2 – compute the difference on the far side of the 20% solution: $c_2 - c_m = 50 - 30 = 20$

Step 3 – compute the difference on the far side of the 50% solution: $c_m - c_1 = 30 - 20 = 10$

Step 4 – form the ratio: Quantity of 20% : Quantity of 50% $= 20 : 10$

$= 2 : 1$

Step 5 – attach the given volume to the correct part: The 20% solution is fixed at 30 litres, and it corresponds to the **2** parts.

$2 \text{ parts} = 30 \text{ litres}$

$1 \text{ part} = \dfrac{30}{2} = 15 \text{ litres}$

Step 6 – read off the required volume: The 50% solution corresponds to 1 part.

Volume of 50% solution $= 1 \times 15 =$ **15 litres**

Step 7 – verify by an acid balance: Acid in the 20% solution $= 30 \times 0.20 = 6$ litres

Acid in the 50% solution $= 15 \times 0.50 = 7.5$ litres

Total acid $= 6 + 7.5 = 13.5$ litres

Total volume $= 30 + 15 = 45$ litres

Concentration $= \dfrac{13.5}{45} \times 100 = 30\%$

This is exactly the required mean, so 15 litres is confirmed.

Step 8 – sanity check the direction: The mean 30% sits closer to 20% than to 50%, so the mixture must contain **more** of the weaker solution. It has 30 litres of 20% against 15 litres of 50%, which is consistent.

Why the other options are wrong:

- A, 10 litres: divides the 30 litres by the **total** number of parts, $2 + 1 = 3$, giving $30/3 = 10$. The 30 litres is the value of the 2-part share only, not of the whole mixture, so it must be divided by 2.
- B, 30 litres: assumes equal volumes of the two solutions. Equal volumes of 20% and 50% would give a mean of $(20 + 50)/2 = 35\%$, not the 30% asked for. The distance check in Step 8 rules this out immediately.
- C, 60 litres: **inverts the alligation ratio**, pairing each solution with the difference on its own side instead of the far side. That gives 50% : 20% $= 2 : 1$ and hence $30 \times 2 = 60$ litres. It fails Step 8 badly, since more of the stronger solution would push the mean above 35%.

Final Answer: 15 litres $\Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q4

Q5.

Solution

Concept – remainders of powers are cyclic: Never expand the power. Compute the remainders of the first few powers, find the length of the repeating cycle, and then locate the required exponent inside that cycle.

Step 1 – find the remainder of the first few powers of 2 on division by 7:
$2^1 = 2$, and $2 \div 7$ leaves remainder **2**

$2^2 = 4$, and $4 \div 7$ leaves remainder **4**

$2^3 = 8$, and $8 \div 7$ leaves remainder **1**

$2^4 = 16$, and $16 \div 7$ leaves remainder **2**

Step 2 – identify the cycle: The remainders run $2, 4, 1, 2, 4, 1, \ldots$

The pattern repeats after every **3** powers, so the cycle length is 3.

Step 3 – state why the cycle is exactly 3: Once 2^3 leaves remainder 1, multiplying by another 2^3 multiplies the remainder by 1 and changes nothing. So the block of three restarts each time.

Step 4 – divide the exponent by the cycle length: $51 \div 3 = 17$ with remainder 0

Step 5 – interpret a remainder of zero: A remainder of 0 means 51 is an exact multiple of 3, so 2^{51} sits at the **end** of a full cycle. The end of the cycle is the third entry, whose remainder is **1**.

Step 6 – confirm algebraically: $2^{51} = (2^3)^{17} = 8^{17}$

$8 = 7 \times 1 + 1$, so 8 leaves remainder 1.

Therefore 8^{17} leaves remainder $1^{17} = 1$.

Step 7 – state the answer: The remainder is **1**.

Why the other options are wrong:

- A, 0: would mean 7 divides 2^{51} exactly. That is impossible, because 2^{51} has only 2 as a prime factor and 7 is a different prime. No power of 2 is ever divisible by 7.
- C, 2: comes from reading the remainder $51 \bmod 3 = 0$ as though it pointed to the **first** entry of the cycle, which is $2^1 \to 2$. A remainder of 0 points to the last entry of the cycle, not the first.
- D, 4: is the second entry of the cycle, that is $2^2 \to 4$. It is picked by anyone who counts 51 into the cycle with an off-by-one slip.

Final Answer: $1 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q5

Q6.

Solution

Concept – "at least" in a histogram means ADD every bar from that boundary onwards: A histogram groups the data into class intervals, so a threshold question is never answered from one bar. Identify which class intervals lie fully on the required side of the threshold and total their frequencies.

Step 1 – list every bar with its class interval and frequency: 0–10 hours: 8 components

10–20 hours: 14 components

20–30 hours: 22 components

30–40 hours: 26 components

40–50 hours: 18 components

50–60 hours: 12 components

Step 2 – check the total against the stem: $8 + 14 = 22$

$22 + 22 = 44$

$44 + 26 = 70$

$70 + 18 = 88$

$88 + 12 = 100$

The total is 100 components, which matches the question. The bars have been read correctly.

Step 3 – decide which intervals satisfy "at least 30 hours": "At least 30" means a lifetime of 30 hours or more. The boundary 30 is the **left** edge of the $30–40$ class, so that class and every class to its right qualify.

Qualifying intervals: $30–40$, $40–50$ and $50–60$.

Step 4 – combine the three qualifying bars: $26 + 18 = 44$

$44 + 12 = 56$

So 56 components last at least 30 hours.

Step 5 – convert the count to a percentage: Percentage $= \dfrac{56}{100} \times 100$

$= 56\%$

Step 6 – cross-check using the complement: Components below 30 hours $= 8 + 14 + 22 = 44$

$56 + 44 = 100$, which accounts for every component. The split is consistent.

Step 7 – note why the percentage is easy here: The total is exactly 100, so the combined count and the percentage happen to be the same number. Do not assume this in general; always divide by the true total.

Why the other options are wrong:

- A, 44%: is the **complement**. It totals the three bars *below* 30 hours, $8 + 14 + 22 = 44$. This is the answer to "less than 30 hours", so it catches anyone who combines the bars on the wrong side of the threshold.
- B, 30%: combines only the last two bars, $18 + 12 = 30$, treating "at least 30 hours" as "more than 40 hours". It drops the $30–40$ class, which does qualify because 30 is its left boundary.
- D, 26%: reads the single tallest bar, the $30–40$ class. This is the trap the question warns against: a threshold question always needs bars to be combined, never a single bar read off.

Final Answer: 56% $\Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q6

Q7.

Solution

Concept – work from the centre of the Venn diagram outwards: The three-language figures given in the stem are **totals**, not region counts. Each pairwise total still contains the all-three group, so peel the diagram apart from the middle: fill the centre first, then the pair-only regions, then the single-only regions.

Step 1 – write down what is given: $n(\text{Python}) = 60$

$n(\text{MATLAB}) = 55$

$n(\text{C++}) = 45$

$n(\text{Python} \cap \text{MATLAB}) = 20$

$n(\text{Python} \cap \text{C++}) = 22$

$n(\text{MATLAB} \cap \text{C++}) = 18$

$n(\text{all three}) = 10$

Step 2 – fill the centre region: Studying all three $= 10$. This number sits in the middle petal of the diagram.

Step 3 – find the Python-and-MATLAB-only region: The figure 20 counts everyone in both Python and MATLAB, including the 10 who also take C++.

Python and MATLAB only $= 20 - 10 = 10$

Step 4 – find the Python-and-C++-only region: Python and C++ only $= 22 - 10 = 12$

Step 5 – assemble the Python circle piece by piece: The Python circle of 60 is made of exactly four regions:

Python only + (Python and MATLAB only) + (Python and C++ only) + (all three) $= 60$

Step 6 – substitute the regions found: Python only $+10 + 12 + 10 = 60$

Step 7 – solve: Python only $+32 = 60$

Python only $= 60 - 32$

Python only $=$ **28**

Step 8 – verify with the standard formula: The same result follows from

$$n(\text{P only}) = n(\text{P}) - n(\text{P} \cap \text{M}) - n(\text{P} \cap \text{C}) + n(\text{all three})$$

$= 60 - 20 - 22 + 10$

$= 60 - 42 + 10$

$= 18 + 10$

$= 28$

The 10 is **added back** because subtracting both pairwise totals removes the all-three group twice, once too often.

Why the other options are wrong:

- B, 38: comes from $60 - 22 = 38$, subtracting only **one** overlap. It forgets the 20 trainees shared with MATLAB entirely.
- C, 18: comes from $60 - 20 - 22 = 18$. Both pairwise totals are subtracted but the all-three group is **not added back**. Those 10 trainees were removed twice, so 18 undercounts by exactly 10. This is the most common error in the question type.
- D, 30: comes from $60 - 20 - 10 = 30$, subtracting the Python-MATLAB total and the all-three group but ignoring the Python-C++ overlap of 22 altogether.

Final Answer: 28 $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q7

Q8.

Solution

Concept – a letter-to-number code is decoded number by number, never guessed from the options: Convert each number back to its letter using A $= 1$ through Z $= 26$, assemble the letters in order, and only then look at the options.

Step 1 – count the numbers in the string: The string is 3–1–2–12–5, which has **5** numbers.

So the decoded word must have exactly **5** letters. This alone narrows the field before any decoding.

Step 2 – decode the first number: $3 \to$ the 3rd letter of the alphabet (A, B, C) $\to$ **C**

Step 3 – decode the second number: $1 \to$ the 1st letter $\to$ **A**

Step 4 – decode the third number: $2 \to$ the 2nd letter $\to$ **B**

Step 5 – decode the fourth number: $12 \to$ the 12th letter. Counting from A: A(1), B(2), C(3), D(4), E(5), F(6), G(7), H(8), I(9), J(10), K(11), L(12).

$12 \to$ **L**

Step 6 – decode the fifth number: $5 \to$ the 5th letter (A, B, C, D, E) $\to$ **E**

Step 7 – assemble in order: C, A, B, L, E gives **CABLE**.

Step 8 – verify by encoding back: C $= 3$, A $= 1$, B $= 2$, L $= 12$, E $= 5$.

This reproduces $3–1–2–12–5$ exactly, so the decoding is confirmed.

Why the other options are wrong:

- A, CABIN: has the right first three letters but encodes to $3–1–2–9–14$. It reads the fourth number 12 as **I** $= 9$, and it needs a 14 that the string does not contain. It is placed to catch anyone who stops decoding after the recognisable start CAB.
- C, CALIBRE: has **7** letters, so it fails the length check of Step 1 straight away. It encodes to $3–1–12–9–2–18–5$, which is a different string altogether.
- D, CANDLE: has **6** letters and encodes to $3–1–14–4–12–5$. It contains the digits 12 and 5 in the tail, which is why it looks tempting, but its third number is 14 where the string has 2.

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

Answer: (B) Go Back to Q8

Q9.

Solution

Concept – count triangles by SIZE CLASS, never at random: The two lines AD and BE cut triangle ABC into four smallest regions. Count the triangles made of one region, then of two regions, then of three, then of all four, and keep a running total. This guarantees nothing is missed and nothing is counted twice.

Step 1 – name the four smallest regions: AD and BE cross at F, splitting ABC into:

Region 1: triangle ABF

Region 2: triangle BDF

Region 3: triangle AFE

Region 4: quadrilateral FDCE

Note that region 4 has four corners, so it is **not** a triangle.

Step 2 – count the size-1 triangles (one region each): ABF, BDF and AFE are triangles. FDCE is not.

Size-1 count $= 3$

Running total $= 3$

Step 3 – count the size-2 triangles (two adjacent regions each): ABF + BDF =

triangle **ABD**, bounded by AB, BD and DA. Valid.

ABF + AFE = triangle **ABE**, bounded by AB, BE and EA. Valid.

AFE + FDCE = triangle **ADC**, bounded by AD, DC and CA. Valid.

BDF + FDCE = triangle **BEC**, bounded by BE, EC and CB. Valid.

BDF + AFE: these two regions touch only at the single point F, so they do not form one closed shape. Not valid.

ABF + FDCE: these two regions also touch only at F. Not valid.

Size-2 count $= 4$

Running total $= 3 + 4 = 7$

Step 4 – count the size-3 triangles (three regions each): ABF + BDF + AFE = quadrilateral ABDE. Four corners, so not a triangle.

ABF + BDF + FDCE = ABC minus AFE = quadrilateral ABCE. Not a triangle.

ABF + AFE + FDCE = ABC minus BDF. Not a triangle.

BDF + AFE + FDCE = ABC minus ABF. Not a triangle.

Size-3 count $= 0$

Running total $= 7 + 0 = 7$

Step 5 – count the size-4 triangle (all four regions): All four regions together = triangle **ABC**, the outer triangle itself. Valid.

Size-4 count $= 1$

Running total $= 7 + 1 = \mathbf{8}$

Step 6 – list the final eight for a check: ABF, BDF, AFE, ABD, ABE, ADC, BEC, ABC.

That is 8 distinct triangles, and every one has three straight sides drawn in the figure.

Why the other options are wrong:

- A, 6: counts the three smallest plus ABD, ABE and ABC. It **misses ADC and BEC**, the two triangles that need the quadrilateral region FDCE to be merged with a neighbour. Candidates who never merge the quadrilateral always land on 6.
- B, 7: is 8 minus the outer triangle ABC. **Forgetting the whole figure** is the single most common slip in triangle counting, which is why the systematic size-class method ends with the size-4 pass.
- D, 9: **overcounts by treating FDCE as a triangle**. It has four vertices F, D, C and E, so it cannot be counted as one. Any count above 8 has admitted a

shape that is not a triangle.

Final Answer: 8 triangles $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q9

Q10.

Solution

Concept – an axis of symmetry is a fold line: A line is an axis of symmetry if folding the shape along it makes the two halves land exactly on each other. For a regular polygon, count the fold lines through vertices and the fold lines through edge midpoints separately, then add.

Step 1 – record the shape: A regular hexagon has 6 equal sides and 6 equal interior angles of 120° each.

Step 2 – count the axes through opposite VERTICES: The hexagon has 6 vertices. Each vertex is directly opposite another vertex, so the vertices form $6 \div 2 = 3$ opposite pairs.

Each pair defines one long diagonal through the centre, and folding along it maps the hexagon onto itself.

Vertex axes $= 3$

Step 3 – count the axes through opposite EDGE MIDPOINTS: The hexagon has 6 edges. Each edge is directly opposite another edge, so the edges form $6 \div 2 = 3$ opposite pairs.

Joining the midpoints of each opposite pair gives one more fold line through the centre.

Edge axes $= 3$

Step 4 – check the two families do not overlap: A vertex axis passes through two corners. An edge axis passes through two side midpoints. A corner is never a side midpoint, so no line is counted in both families.

Step 5 – add the two families: Total axes $= 3 + 3$

$= \mathbf{6}$

Step 6 – confirm with the general rule: A regular polygon with n sides has exactly n axes of symmetry.

Here $n = 6$, so the count is 6. This agrees with Step 5.

Step 7 – note how the rule splits for even and odd n: When n is even, the n axes split into $n/2$ vertex axes and $n/2$ edge axes, as counted above. When n is odd, every axis runs from one vertex to the midpoint of the opposite side, giving n axes of a single type. Either way the total is n.

Why the other options are wrong:

- A, 3: counts **only the vertex-to-vertex** diagonals from Step 2 and stops there. It misses the three fold lines through opposite edge midpoints, which are equally valid axes.
- C, 2: treats the hexagon like a **rectangle**, counting just one horizontal and one vertical fold line. A rectangle has 2 axes because its sides are unequal; a regular hexagon has all sides equal, so far more folds work.
- D, 12: confuses axes of symmetry with the **total number of symmetries**. A regular hexagon has 6 reflections plus 6 rotations, giving 12 symmetries in all, but only the 6 reflections are axes. Rotations are not fold lines.

Final Answer: 6 axes of symmetry $\Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q10

Answer Key

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