

Symbiosis Entrance Test (SET)

Analytical & Logical Reasoning — Sample Paper 9

Total Questions: 12

Maximum Marks: 12

Duration: 12 minutes

Marking Scheme: +1 per correct answer; no negative marking

Mode: Online CBT

Instructions

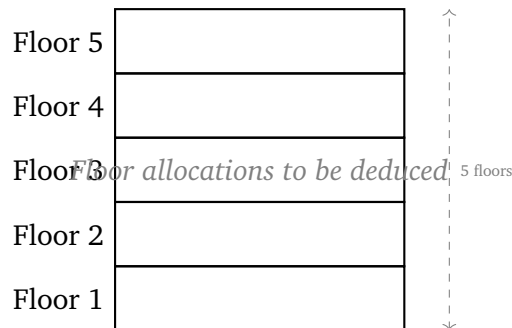
1. This paper contains 12 multiple-choice questions carrying 1 mark each.
2. Each question has four options (A)–(D). Choose the single best answer.
3. There is no negative marking for wrong answers.
4. Attempt all questions within the stipulated time of 12 minutes.
5. Syllabus: Puzzles, Syllogisms, Coding-Decoding, Blood Relations, Series, Direction Sense, Analogies — as tested in SET (Symbiosis Entrance Test) Analytical & Logical Reasoning section.

SECTION: Analytical & Logical Reasoning
(12 Questions × 1 Mark)

Read the following information carefully and answer Questions 1–3.

Setup: Five friends — Anand, Bhavna, Chitra, Deepak, and Ekta — live on different floors of a 5-floor building (Floor 1 = ground floor, Floor 5 = top floor). The following conditions hold:

1. Deepak lives on the **top floor** (Floor 5).
2. Anand lives on a floor **higher than Chitra** but **lower than Bhavna**.
3. Ekta lives on the floor **immediately above** Anand.
4. Ekta does **not** live on the ground floor.



Q1. Who lives on Floor 3?

- (A) Anand
- (B) Bhavna
- (C) Chitra
- (D) Ekta

Q2. How many floors are there **between** Chitra and Bhavna?

- (A) 2
- (B) 1
- (C) 3
- (D) 0

Q3. Who lives on the floor **immediately above** Anand?



- (A) Deepak
- (B) Ekta
- (C) Bhavna
- (D) Chitra

Q4. Statements:

- (I) All laptops are computers.
- (II) No computer is a typewriter.

Conclusions:

- I. No laptop is a typewriter.
- II. Some typewriters are computers.

Which of the following holds?

- (A) Only Conclusion II follows
- (B) Both Conclusions follow
- (C) Only Conclusion I follows
- (D) Neither follows

Q5. Statements:

- (I) Some actors are singers.
- (II) All singers are musicians.

Conclusions:

- I. Some actors are musicians.
- II. All musicians are actors.

Which of the following holds?

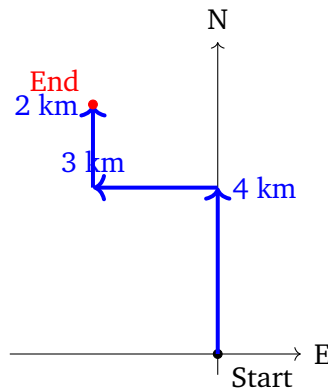
- (A) Only Conclusion I follows
- (B) Both Conclusions follow
- (C) Only Conclusion II follows
- (D) Neither follows



- Q6.** In a certain code language, each letter is replaced by the letter that is **3 positions ahead** in the alphabet (with wrap-around: $X \rightarrow A$, $Y \rightarrow B$, $Z \rightarrow C$). If CRANE is coded as **FUDQH**, how will FLAME be coded?
- (A) HODPH
(B) IODPG
(C) JODPH
(D) IODPH
- Q7.** Pointing to a photograph, a man says, “The lady in the photograph is my **paternal grandmother’s only son’s daughter.**” How is the lady related to the man?
- (A) Mother
(B) Sister
(C) Aunt
(D) Niece
- Q8.** Pointing to Meera, Karan says, “Her father is the **only son of my father.**” How is Meera related to Karan?
- (A) Mother
(B) Sister
(C) Daughter
(D) Aunt
- Q9.** Find the missing term in the series: 5, 11, 23, 47, 95, ?
- (A) 185
(B) 189
(C) 193
(D) 191



Q10. Rahul starts facing **East**. He turns **left** and walks 4 km, then turns **left** again and walks 3 km, and finally turns **right** and walks 2 km. In which direction is Rahul now **facing**?

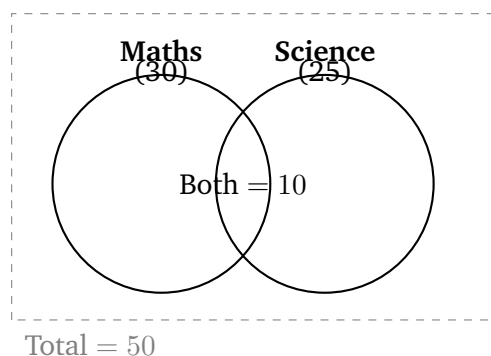


- (A) North
- (B) South
- (C) East
- (D) West

Q11. Architect : Building $\therefore$ Sculptor : ?

- (A) Painting
- (B) Statue
- (C) Canvas
- (D) Museum

Q12. In a class of 50 students, 30 like Mathematics, 25 like Science, and 10 like **both** subjects. How many students like **neither** Mathematics nor Science?



- (A) 10
- (B) 8
- (C) 5
- (D) 15



Detailed Solutions

Solution

Topic: Floor Arrangement

Step-by-step deduction:

- Q1.
- Deepak = Floor 5 (given directly).
 - From condition (2): $\text{Chitra} < \text{Anand} < \text{Bhavna}$.
 - From condition (3): Ekta is on the floor immediately above Anand, so $\text{Ekta} = \text{Anand} + 1$.
 - Since Deepak is on Floor 5, the remaining floors 1–4 are shared among Anand, Bhavna, Chitra, and Ekta.
 - $\text{Ekta} = \text{Anand} + 1$ means (Anand, Ekta) can be (2,3) or (3,4).
 - If Anand = 3, Ekta = 4. Then Bhavna > 3, but Ekta occupies 4 and Deepak occupies 5, leaving no valid floor for Bhavna. **Invalid.**
 - If Anand = 2, Ekta = 3. Then Bhavna > 2 and Bhavna $\neq$ 3 (Ekta) and $\neq$ 5 (Deepak) $\Rightarrow$ Bhavna = 4. Then $\text{Chitra} < \text{Anand} = 2 \Rightarrow \text{Chitra} = 1$. **Valid and unique.**

Final arrangement:

Chitra	Anand	Ekta	Bhavna	Deepak
⏟	⏟	⏟	⏟	⏟
1	2	3	4	5

Floor 3 is occupied by **Ekta**.

Option (A) Anand = Floor 2. Incorrect. Option (B) Bhavna = Floor 4. Incorrect.
 Option (C) Chitra = Floor 1. Incorrect.

Correct answer: (D) Ekta.Answer: (D) [Go Back to Q 1](#)

Q2.

Solution

Topic: Floor Arrangement

Using the arrangement from Q1:

Chitra(1) – Anand(2) – Ekta(3) – Bhavna(4) – Deepak(5)



Floors between Chitra (Floor 1) and Bhavna (Floor 4): Floors 2 (Anand) and 3 (Ekta) lie strictly between floors 1 and 4. That is **2 floors**.

Option (B) 1: Incorrect — there are two intermediate floors. Option (C) 3: Incorrect — the difference in floor numbers is $4 - 1 = 3$, but only 2 floors lie *between* them. Option (D) 0: Incorrect.

Correct answer: (A) 2.

Answer: (A) [Go Back to Q 2](#)

Q3.

Solution

Topic: Floor Arrangement

Using the arrangement from Q1: Anand = Floor 2, Ekta = Floor 3.

The person on the floor **immediately above Anand** (Floor $2 + 1 =$ Floor 3) is **Ekta**.

This is also directly stated as Condition (3) in the setup, confirming the answer.

Option (A) Deepak is on Floor 5 — not immediately above Anand. Option (C) Bhavna is on Floor 4 — two floors above Anand, not one. Option (D) Chitra is on Floor 1 — below Anand.

Correct answer: (B) Ekta.

Answer: (B) [Go Back to Q 3](#)

Solution

Topic: Syllogisms

Statements:

Q4. (I) All laptops are computers. $[All L \subseteq C]$

(II) No computer is a typewriter. $[C \cap T = \emptyset]$

Analysis of Conclusion I — “No laptop is a typewriter”:

Every laptop is a computer (Statement I), and no computer is a typewriter (Statement II). By the law of syllogism (transitive reasoning): no laptop can be a typewriter. **Conclusion I follows.**

Analysis of Conclusion II — “Some typewriters are computers”:

Statement II asserts “No computer is a typewriter,” which is logically equivalent to “No typewriter is a computer.” The claim “Some typewriters are computers” directly contradicts Statement II. **Conclusion II does NOT follow.**



Option (A) Only II: incorrect (II contradicts Statement II). Option (B) Both: incorrect (II does not follow). Option (D) Neither: incorrect (I follows).

Correct answer: (C) Only Conclusion I follows.

Answer: (C) [Go Back to Q 4](#)

Solution

Topic: Syllogisms

Statements:

- Q5. (I) Some actors are singers. $[A \cap S \neq \emptyset]$
 (II) All singers are musicians. $[All S \subseteq M]$

Analysis of Conclusion I — “Some actors are musicians”:

From Statement I, certain actors are also singers. From Statement II, every singer is a musician. Therefore those actors (who are singers) are also musicians $\Rightarrow$ some actors are musicians. **Conclusion I follows.**

Analysis of Conclusion II — “All musicians are actors”:

Statement II says singers are a subset of musicians; Statement I says only *some* actors are singers. There is no link between *all* musicians and actors. There could be many musicians who are neither singers nor actors. **Conclusion II does NOT follow.**

Option (B) Both: incorrect (II does not follow). Option (C) Only II: incorrect (II does not follow). Option (D) Neither: incorrect (I follows).

Correct answer: (A) Only Conclusion I follows.

Answer: (A) [Go Back to Q 5](#)

Solution

Topic: Coding-Decoding (Alphabetic Shift +3)

Rule: Each letter is replaced by the letter **3 positions ahead** in the alphabet ($A \rightarrow D$, $B \rightarrow E$, ..., $X \rightarrow A$, $Y \rightarrow B$, $Z \rightarrow C$).

Verification with CRANE $\rightarrow$ FUDQH:



	Letter	Position	Coded (+3)
	C	3	F (6)
	R	18	U (21)
Q6.	A	1	D (4)
	N	14	Q (17)
	E	5	H (8)

Result: **FUDQH** ✓

Applying to **FLAME**:

	Letter	Position	Coded (+3)
	F	6	I (9)
	L	12	O (15)
	A	1	D (4)
	M	13	P (16)
	E	5	H (8)

Code for FLAME = I-O-D-P-H = **IODPH**.

Option (A) HODPH: H would require F→H (shift +2, not +3). Incorrect. Option (B) IODPG: G would require E→G (shift +2, not +3). Incorrect. Option (C) JODPH: J would require F→J (shift +4, not +3). Incorrect.

Correct answer: (D) IODPH.

Answer: (D) [Go Back to Q 6](#)

Solution

Topic: Blood Relations

Chain: "My paternal grandmother's only son's daughter."

- Q7. (a) **My paternal grandmother's only son:** The man's paternal grandmother has exactly one son. That son is the man's own **father** (since the man's father is the son of his paternal grandparents, and he is the only son).

(b) **That son's daughter:** The man's father's daughter = the man's **sister**.

The lady in the photograph is the man's **sister**.

Option (A) Mother: the mother is the father's wife, not the father's daughter. Incorrect. Option (C) Aunt: an aunt is a sibling of a parent; here the lady is the daughter of the parent (father). Incorrect. Option (D) Niece: a niece is the daughter of one's sibling. Incorrect.

Correct answer: (B) Sister.



Answer: (B) [Go Back to Q 7](#)

Solution

Topic: Blood Relations

Statement: "Her (Meera's) father is the only son of my (Karan's) father."

- Q8. (a) **Only son of Karan's father:** Karan's father's only son is **Karan himself**.
 (b) Therefore: Meera's father = Karan.
 (c) Meera is the **daughter of Karan**.

Option (A) Mother: Meera cannot be Karan's mother if Karan is her father. Incorrect. Option (B) Sister: sisters share the same parents; here Karan is Meera's parent. Incorrect. Option (D) Aunt: an aunt is a parent's sister; Karan is male and Meera's father. Incorrect.

Correct answer: (C) Daughter.

Answer: (C) [Go Back to Q 8](#)

Solution

Topic: Number Series (Rule: $T_{n+1} = 2T_n + 1$)

Series: 5, 11, 23, 47, 95, ?

Identifying the pattern:

	Term	Verification
	5	(start)
	11	$5 \times 2 + 1 = 11$ ✓
Q9.	23	$11 \times 2 + 1 = 23$ ✓
	47	$23 \times 2 + 1 = 47$ ✓
	95	$47 \times 2 + 1 = 95$ ✓
	?	$95 \times 2 + 1 = 191$

Each term is obtained by multiplying the previous term by 2 and adding 1. The missing term is 191.

Option (A) 185: $95 \times 2 - 5 = 185$ — addend changes, violating the rule. Incorrect.
 Option (B) 189: $95 \times 2 - 1 = 189$ — addend is -1 not +1. Incorrect. Option (C) 193: $95 \times 2 + 3 = 193$ — addend is 3 not 1. Incorrect.

Correct answer: (D) 191.

Answer: (D) [Go Back to Q 9](#)



Solution**Topic: Direction Sense****Tracking turns and movements step by step:****Q10.** (a) Rahul starts **facing East**.(b) He turns **left** (a left turn from East = North). Now facing **North**. Walks 4 km North.(c) He turns **left** again (a left turn from North = West). Now facing **West**. Walks 3 km West.(d) He turns **right** (a right turn from West = North). Now facing **North**. Walks 2 km North.After Step 4, Rahul is facing **North**.*Recall:* When facing West, a 90 clockwise (right) rotation gives North ($W \xrightarrow{+90 \text{ CW}} N$).

Option (B) South: would require two additional right turns from North. Incorrect.

Option (C) East: the initial direction, not the final one. Incorrect. Option (D) West: the direction after Step 3, before the final right turn. Incorrect.

Correct answer: (A) North.**Answer: (A)** [Go Back to Q 10](#)**Solution****Topic: Creator–Creation Analogy**The relationship is: **Professional : Artefact they create.****Q11.** • An **Architect** designs and builds a **Building**.• A **Sculptor** carves and creates a **Statue**.

Option (A) Painting: a Painter creates a Painting, not a Sculptor. Incorrect. Option (C) Canvas: a canvas is the surface on which a Painter works; Sculptors do not use canvases. Incorrect. Option (D) Museum: a Museum exhibits artwork but is not something a Sculptor creates. Incorrect.

Correct answer: (B) Statue.**Answer: (B)** [Go Back to Q 11](#)**Q12.**

Solution**Topic: Set Theory / Venn Diagram****Given:** Total = 50, $|M| = 30$, $|S| = 25$, $|M \cap S| = 10$.**Step 1 — Apply the Inclusion-Exclusion Principle:**

$$|M \cup S| = |M| + |S| - |M \cap S| = 30 + 25 - 10 = 45$$

Step 2 — Students who like neither:

$$n(\text{neither}) = \text{Total} - |M \cup S| = 50 - 45 = 5$$

Verification: Only Maths = $30 - 10 = 20$; Only Science = $25 - 10 = 15$; Both = 10; Neither = 5. Total = $20 + 15 + 10 + 5 = 50$. ✓

Option (A) 10: equals $|M \cap S|$ (the “both” group), not “neither”. Incorrect. Option (B) 8: no derivation from the given data yields 8. Incorrect. Option (D) 15: equals $|S| - |M \cap S|$ (Science only), not “neither”. Incorrect.

Correct answer: (C) 5.**Answer: (C)** [Go Back to Q 12](#)**ANSWER KEY**

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	D	2	A	3	B	4	C	5	A
6	D	7	B	8	C	9	D	10	A
11	B	12	C						

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