

Bihar B.Ed CET Logical & Analytical Reasoning

Sample Paper – 3

Duration: 25 Minutes

Maximum Marks: 25

Instructions

- This paper contains **25** Multiple Choice Questions (Single Correct Answer), modelled on the Logical & Analytical Reasoning section of **Bihar B.Ed CET**.
- Each correct answer carries **+1 mark**. There is **no negative marking** for incorrect or unattempted answers.
- Only **one** option is correct. Choose carefully.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.
- Rough work may be done in the margin of the question paper.

SECTION: LOGICAL & ANALYTICAL REASONING

Q1. What comes next in the series?

1, 2, 4, 7, 11, ?

- (A) 16
- (B) 14
- (C) 15
- (D) 17

Q2. Find the missing term in the letter series:

A, C, F, J, O, ?

- (A) P
- (B) Q
- (C) T



(D) U

Q3. Choose the best word to complete the analogy:

Seed : Plant :: Egg : ?

- (A) Nest
- (B) Bird
- (C) Feather
- (D) Fly

Q4. Select the missing number based on the same relationship:

13 : 4 :: 22 : ?

- (A) 2
- (B) 3
- (C) 4
- (D) 6

Q5. Which number does **NOT** belong in the group?

121, 144, 196, 200

- (A) 121
- (B) 144
- (C) 196
- (D) 200

Q6. In a certain code, **COME** is written as **XLNV**. Using the same coding rule, what is the code for **BIRD**?

Hint: each letter is replaced by its alphabetical complement ($A \leftrightarrow Z$, $B \leftrightarrow Y$, $C \leftrightarrow X$, ...).

- (A) YRIW
- (B) ZQJW



(C) XRIW

(D) YRIV

Q7. If A = 1, B = 2, C = 3, ..., Z = 26, decode the following number sequence into a word:

19 – 3 – 8 – 15 – 15 – 12

(A) LESSON

(B) WISDOM

(C) SCHOOL

(D) PENCIL

Q8. Pointing to a photograph, Reena says, “She is the daughter of my grandfather’s only son.” How is the person in the photograph related to Reena?

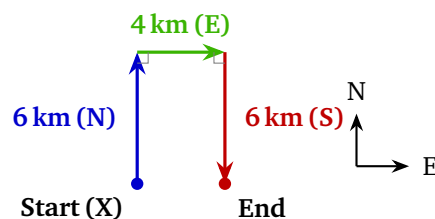
(A) Mother

(B) Sister

(C) Daughter

(D) Niece

Q9. A person starts from point X, walks **6 km North**, then turns **right** and walks **4 km**, then turns **right** again and walks **6 km**. In which direction is he now **facing**?



(A) North

(B) East

(C) West

(D) South



Q10. In a row of people, Mohan is **7th from the left** and Sohan is **9th from the right**. Mohan is to the left of Sohan, and there are **3 persons between** them. What is the **total number of persons** in the row?

- (A) 19
- (B) 20
- (C) 18
- (D) 21

Q11. Statements:

- All dogs are animals.
- No animal is a plant.

Conclusions:

- I. No dog is a plant.
- II. Some dogs are plants.

Which conclusion(s) logically follow(s)?

- (A) Only II follows
- (B) Both I and II follow
- (C) Only I follows
- (D) Neither I nor II follows

Q12. Statements:

- Some flowers are red.
- All red things are beautiful.

Conclusions:

- I. Some flowers are beautiful.
- II. All flowers are beautiful.

Which conclusion(s) logically follow(s)?

- (A) Only II follows
- (B) Only I follows
- (C) Both I and II follow



(D) Neither follows

Q13. Statement: “Global temperatures are rising due to increased greenhouse gases produced by human activities.”

Conclusions:

- I. Greenhouse gases cause global warming.
- II. Human activities contribute to climate change.

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

Q14. Statement: “Warning: Contents under pressure. Keep away from heat.”

Assumptions:

- I. The contents may explode if exposed to heat.
- II. People read and heed warnings printed on containers.

- (A) Both assumptions are implicit
- (B) Only Assumption I is implicit
- (C) Only Assumption II is implicit
- (D) Neither assumption is implicit

Q15. Statement: “Should physical education be made compulsory in all schools?”

Arguments:

- I. Yes — it promotes physical fitness and overall health among students.
- II. No — it takes valuable time away from academic subjects.

Which of the above argument(s) is/are **strong**?

- (A) Only Argument I is strong
- (B) Only Argument II is strong
- (C) Both arguments are strong
- (D) Neither argument is strong



Q16. Five friends — Amit, Bina, Charu, Dev, and Ela — hold five different professions: Doctor, Engineer, Lawyer, Teacher, and Pilot. The following clues are given:

- Bina is the Lawyer.
- Dev is **not** the Doctor.
- Amit is the Pilot.
- Ela is the Teacher.

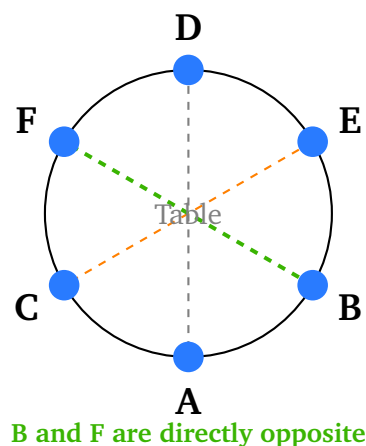
Who among them is the **Doctor**?

- (A) Amit
- (B) Charu
- (C) Dev
- (D) Ela

Q17. Six persons A, B, C, D, E, and F sit around a **circular table facing the centre**. The seating conditions are:

- A sits directly opposite D.
- B is to the **immediate left** of A.
- E is to the **immediate right** of D.
- C sits in the arc between E and F (not passing through D or A).

Who sits **directly opposite** B?



- (A) A
- (B) C
- (C) E



(D) F

Q18. The symbols are defined as follows: $P = +$, $Q = -$, $R = \times$, $S = \div$.
Find the value of:

$$16 \text{ R } 4 \text{ S } 8 \text{ P } 3 \text{ Q } 2$$

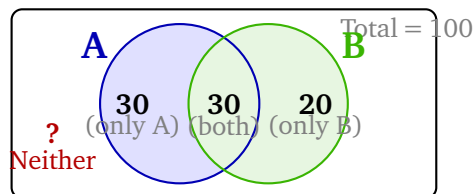
(A) 9

(B) 7

(C) 11

(D) 5

Q19. In a group of **100 people**, **60** read Newspaper A, **50** read Newspaper B, and **30** read **both**. How many people read **neither** newspaper?



(A) 30

(B) 25

(C) 20

(D) 10

Q20. January 1, 2020 was a **Wednesday**. What day of the week was January 1, 2021?

(A) Thursday

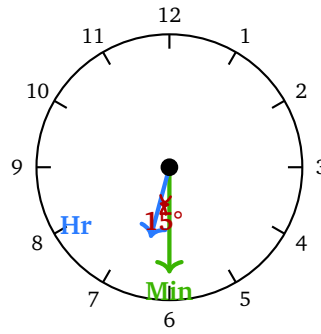
(B) Friday

(C) Saturday

(D) Sunday

Q21. What is the angle between the hour hand and the minute hand of a clock at **6:30**?





- (A) 0°
- (B) 5°
- (C) 10°
- (D) 15°

Q22. Find the missing term in the alphanumeric series:

$Z3Y, X6W, V9U, ?$

- (A) T12S
- (B) S12T
- (C) U12T
- (D) T9S

Q23. Which is the **odd one out**?

36, 49, 64, 70, 81

- (A) 36
- (B) 70
- (C) 81
- (D) 64

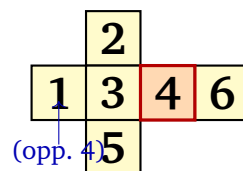
Q24. Find the missing number (?) in the table below, based on the pattern in each row:



Column 1	Column 2	Column 3
5	25	125
2	4	8
3	9	?

- (A) 18
- (B) 21
- (C) 27
- (D) 30

Q25. The net of a dice (cube) is shown below. When folded, which number will be **opposite to face 4**?



- (A) 2
- (B) 3
- (C) 6
- (D) 1



Solutions

Q1. [↑ Go Back to Q1](#)

Solution

Concept: Look at the differences between consecutive terms to find a pattern (second-order difference).

Step 1 — Find first differences:

$$2 - 1 = 1, \quad 4 - 2 = 2, \quad 7 - 4 = 3, \quad 11 - 7 = 4$$

Differences: 1, 2, 3, 4 — increasing by 1 each time.

Step 2 — Apply the pattern: The next difference must be 5.

$$\text{Next term} = 11 + 5 = 16$$

Why other options are wrong:

- (B) 14: adds 3 (wrong next difference)
- (C) 15: adds 4 (repeats last difference instead of increasing it)
- (D) 17: adds 6 (skips a step)

Answer: (A)

Q2. [↑ Go Back to Q2](#)

Solution

Concept: Track the alphabetical positions and the gaps between successive letters.

Step 1 — Assign positions: A=1, C=3 (gap 2), F=6 (gap 3), J=10 (gap 4), O=15 (gap 5).

Step 2 — Identify gap pattern: Gaps are 2, 3, 4, 5 — increasing by 1 each step. Next gap = 6.

Step 3: $15 + 6 = 21 = \text{U}$ (21st letter of the alphabet).

Why other options are wrong: P=16 (gap 1 from O), Q=17 (gap 2), T=20 (gap 5 repeated). Only U=21 fits gap 6.

Answer: (D)



Q3. [↑ Go Back to Q3](#)**Solution**

Concept: The relationship is *potential form* → *realised (grown) form*.

Step 1: A **Seed** grows into a **Plant**.

Step 2: Similarly, an **Egg** hatches and grows into a **Bird**.

Why other options are wrong:

- (A) Nest: a nest is the habitat of a bird, not what an egg becomes.
- (C) Feather: a feather is a part of a bird, not the result of an egg.
- (D) Fly: flying is an action, not an entity produced from an egg.

Answer: (B)

Q4. [↑ Go Back to Q4](#)**Solution**

Concept: The second number equals the *sum of digits* of the first number.

Step 1 — Verify with given pair: $1 + 3 = 4$ ✓ (so 13 : 4)

Step 2 — Apply to find the missing number: $2 + 2 = 4 \Rightarrow 22 : 4$

Why other options are wrong: (A) 2, (B) 3, (D) 6 — none equal the digit sum of 22.

Answer: (C)

Q5. [↑ Go Back to Q5](#)**Solution**

Concept: All numbers in the group share a common property (being *perfect squares*), except one.

Step 1 — Check each option:

- $121 = 11^2$ ✓
- $144 = 12^2$ ✓
- $196 = 14^2$ ✓
- 200: $14^2 = 196$ and $15^2 = 225$, so 200 lies *between* two consecutive squares — **not a perfect square**.

Step 2 — Identify the odd one out: 200 is the only number that is not a perfect square.

Answer: (D)



Q6. [↑ Go Back to Q6](#)**Solution**

Concept: Each letter is replaced by its *alphabetical complement*: the letter at position $27 - n$ (i.e., $A \leftrightarrow Z$, $B \leftrightarrow Y$, $C \leftrightarrow X$, ...).

Step 1 — Verify with COME → XLNV: $C(3) \rightarrow X(24) \checkmark$, $O(15) \rightarrow L(12) \checkmark$, $M(13) \rightarrow N(14) \checkmark$, $E(5) \rightarrow V(22) \checkmark$

Step 2 — Encode BIRD:

Letter	B	I	R	D
Position	2	9	18	4
$27 - n$	25	18	9	23
Code	Y	R	I	W

Code for BIRD = YRIW.

Why other options are wrong: (B) ZQJW: $Z \neq \text{code}(B)$; (C) XRIW: $X \neq \text{code}(B)$; (D) YRIV: $V \neq \text{code}(D)$.

Answer: (A)

Q7. [↑ Go Back to Q7](#)**Solution**

Concept: Convert each number to the corresponding letter ($A=1$, $B=2$, ..., $Z=26$).

Step 1 — Decode the sequence:

$$19 \rightarrow S, \quad 3 \rightarrow C, \quad 8 \rightarrow H, \quad 15 \rightarrow O, \quad 15 \rightarrow O, \quad 12 \rightarrow L$$

Step 2: Reading in order: $S-C-H-O-O-L = \text{SCHOOL}$.

Why other options are wrong: LESSON = 12-5-19-19-15-14; WISDOM = 23-9-19-4-15-13; PENCIL = 16-5-14-3-9-12 — none match.

Answer: (C)

Q8. [↑ Go Back to Q8](#)**Solution**

Concept: Trace the family chain step by step.

Step 1: Reena's grandfather's only son = Reena's **father**.

Step 2: The person in the photograph is the **daughter of Reena's father**. That means she is Reena's sister (a different daughter, since the photo is of someone else).



Why other options are wrong:

- (A) Mother: Reena's mother is the wife, not the daughter, of Reena's father.
- (C) Daughter: Reena does not have a daughter here; that relationship would require another generation.
- (D) Niece: A niece is the daughter of a sibling, not of a parent.

Answer: (B)**Q9.** [↑ Go Back to Q9](#)**Solution****Concept:** Turning *right* rotates facing direction 90° clockwise.**Step 1:** Starts facing **North**, walks 6 km.**Step 2:** Turns right $\Rightarrow$ now faces **East**. Walks 4 km East.**Step 3:** Turns right again $\Rightarrow$ now faces **South**. Walks 6 km South.

After completing the path, the person is facing **South**. (Note: the 6 km North and 6 km South cancel out, placing him 4 km East of start, but the question asks about facing direction, not final position.)

Why other options are wrong: (A) North: initial direction. (B) East: direction after first turn. (C) West: a left turn, not right.

Answer: (D)**Q10.** [↑ Go Back to Q10](#)**Solution****Concept:** Use positional information to set up an equation for total persons N .**Step 1 — Mohan's position from left:** 7.**Step 2 — Sohan's position from left:** $N - 9 + 1 = N - 8$.**Step 3 — Persons between them:** $(N - 8) - 7 - 1 = N - 16 = 3$

$$\Rightarrow N = 3 + 16 = 19$$

Verification: Sohan is at position $19 - 8 = 11$ from left. Persons between positions 7 and 11: positions 8, 9, 10 — exactly 3. ✓

Why other options are wrong: (B) 20 gives $N - 16 = 4 \neq 3$. (C) 18 gives $N - 16 = 2 \neq 3$. (D) 21 gives $N - 16 = 5 \neq 3$.

Answer: (A)

Q11. [↑ Go Back to Q11](#)**Solution**

Concept: Apply standard syllogism rules (All A are B; No B is C $\Rightarrow$ No A is C).

Step 1 — Combine statements: All dogs are animals + No animal is a plant $\Rightarrow$ **No dog is a plant.** This is a valid categorical deduction.

Step 2 — Evaluate Conclusion I: “No dog is a plant” **follows.** ✓

Step 3 — Evaluate Conclusion II: “Some dogs are plants” directly contradicts Conclusion I and the premises. **Does not follow.** ✗

Why other options are wrong: (A) Only II: II is false. (B) Both: II is false. (D) Neither: I is valid.

Answer: (C)Q12. [↑ Go Back to Q12](#)**Solution**

Concept: When “some A are B” and “all B are C”, we can conclude “some A are C”, but *not* “all A are C”.

Step 1 — Combine statements: Some flowers are red. All red things are beautiful. $\Rightarrow$ Those flowers that are red are also beautiful $\Rightarrow$ **Some flowers are beautiful.** ✓

Step 2 — Evaluate Conclusion II: “All flowers are beautiful” requires *all* flowers to be red, which is not stated. Some flowers may not be red. **Does not follow.** ✗

Answer: (B)Q13. [↑ Go Back to Q13](#)**Solution**

Concept: A conclusion follows if it is logically derivable from the statement.

Statement: “Global temperatures are rising due to increased greenhouse gases produced by **human activities.**”

Conclusion I — “Greenhouse gases cause global warming”: The statement directly says temperatures rise *due to* greenhouse gases. This is exactly what global warming means. **Follows.** ✓

Conclusion II — “Human activities contribute to climate change”: The statement states human activities produce greenhouse gases that raise global temperatures — a form of climate change. **Follows.** ✓

Answer: (D)

Q14. [↑ Go Back to Q14](#)**Solution**

Concept: An assumption is implicit if the statement would be pointless or meaningless without it.

Assumption I — “Contents may explode if exposed to heat”: The instruction “Keep away from heat” only makes sense if heat poses a danger (such as explosion). This assumption is **implicit**. ✓

Assumption II — “People read and heed warnings”: A manufacturer prints a warning only because they assume users will read and act on it. Without this assumption, the warning is pointless. This assumption is **implicit**. ✓

Both assumptions are implicit.

Answer: (A)

Q15. [↑ Go Back to Q15](#)**Solution**

Concept: An argument is *strong* if it is directly relevant to the statement and presents a substantial, non-trivial reason.

Argument I (Yes — physical fitness): Physical health is a genuine and important concern; compulsory PE directly addresses it. **Strong**. ✓

Argument II (No — academic time): Academic achievement is also a core goal of schools; losing scheduled class time is a real trade-off. **Strong**. ✓

Both arguments address the statement directly with valid, substantive reasons.

Answer: (C)

Q16. [↑ Go Back to Q16](#)**Solution**

Concept: Use elimination from the given clues.

Step 1 — Assign known professions:

- Bina → Lawyer
- Amit → Pilot
- Ela → Teacher

Step 2 — Remaining people and professions: Charu and Dev must hold Doctor and Engineer.

Step 3 — Apply the final clue: Dev is **not** the Doctor. $\Rightarrow$ Dev = Engineer, **Charu** = Doctor.



Answer: (B)

Q17. [↑ Go Back to Q17](#)

Solution

Concept: Build the circular arrangement step by step using the given conditions.

Step 1: A and D are opposite (3 seats apart in a 6-person circle). Fix D at seat 1 (top).

Step 2: E is to the immediate right of D (clockwise) $\Rightarrow$ E at seat 2.

Step 3: B is to the immediate left of A (counterclockwise from A). A is at seat 4 (opposite D). A's left = seat 3 $\Rightarrow$ B at seat 3.

Step 4: Remaining seats 5 and 6 for C and F. C is in the arc between E(2) and F. With C at seat 5 and F at seat 6, C lies in the clockwise arc from E(2): $2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6$. ✓

Final arrangement (clockwise): D(1) – E(2) – B(3) – A(4) – C(5) – F(6).

Opposite of B: B is at seat 3. $\text{Seat } 3 + 3 = 6 = \text{F}$.

Answer: (D)

Q18. [↑ Go Back to Q18](#)

Solution

Concept: Replace the custom symbols with the actual operations, then apply BODMAS.

Step 1 — Substitute:

$$16 \text{ R } 4 \text{ S } 8 \text{ P } 3 \text{ Q } 2 = 16 \times 4 \div 8 + 3 - 2$$

Step 2 — Apply BODMAS (Multiplication first): $16 \times 4 = 64$

Step 3 — Division: $64 \div 8 = 8$

Step 4 — Addition: $8 + 3 = 11$

Step 5 — Subtraction: $11 - 2 = 9$

Why other options are wrong: (B) 7: incorrect order of operations. (C) 11: subtraction omitted. (D) 5: multiple operation errors.

Answer: (A)



Q19. [↑ Go Back to Q19](#)**Solution****Concept:** Use the inclusion-exclusion principle for two sets.**Step 1 — Find the union:**

$$|A \cup B| = |A| + |B| - |A \cap B| = 60 + 50 - 30 = 80$$

Step 2 — Find those who read neither:

$$\text{Neither} = \text{Total} - |A \cup B| = 100 - 80 = 20$$

Step 3 — Cross-check using breakdown: Only A: $60 - 30 = 30$; Both: 30; Only B: $50 - 30 = 20$; Neither: 20. Total: $30 + 30 + 20 + 20 = 100$. ✓**Answer: (C)**Q20. [↑ Go Back to Q20](#)**Solution****Concept:** Count the number of days in 2020 and find the day shift (odd days).**Step 1 — Is 2020 a leap year?** $2020 \div 4 = 505$ (no remainder), and 2020 is not a century year. Yes, **2020 is a leap year** (366 days).**Step 2 — Count odd days:** $366 = 52 \times 7 + 2$. So there are **2 odd days**.**Step 3 — Find new day:** January 1, 2020 = Wednesday. Adding 2 days: Wed → Thu → **Friday**.**Why other options are wrong:** Thursday (+1 day) corresponds to a non-leap year. Saturday (+3) and Sunday (+4) are incorrect odd-day counts.**Answer: (B)**Q21. [↑ Go Back to Q21](#)**Solution****Concept:** Use the formula for clock hand positions measured from 12.**Step 1 — Minute hand position at 6:30:**

$$30 \times 6 = 180^\circ \text{ (from 12, clockwise)}$$



Step 2 — Hour hand position at 6:30: The hour hand moves 0.5° per minute.

$$6 \times 30^\circ + 30 \times 0.5^\circ = 180^\circ + 15^\circ = 195^\circ$$

Step 3 — Angle between hands:

$$|195^\circ - 180^\circ| = 15^\circ$$

Why other options are wrong: 0° would mean both hands coincide; 5° and 10° ignore the half-degree-per-minute movement of the hour hand.

Answer: (D)

Q22. [↑ Go Back to Q22](#)

Solution

Concept: Each term has three parts — first letter, number, last letter. Analyse each part independently.

Step 1 — First letters: Z, X, V, ... Z(26), X(24), V(22): each decreases by 2 (skips one letter backward). Next: $22 - 2 = 20 = \text{T}$.

Step 2 — Numbers: 3, 6, 9, ... Multiples of 3. Next: 12.

Step 3 — Last letters: Y, W, U, ... Y(25), W(23), U(21): each decreases by 2. Next: $21 - 2 = 19 = \text{S}$.

Missing term: T12S.

Why other options are wrong: (B) S12T: letters are reversed. (C) U12T: first letter is wrong. (D) T9S: number is wrong.

Answer: (A)

Q23. [↑ Go Back to Q23](#)

Solution

Concept: Identify which number breaks the common property of the group.

Step 1 — Check each number:

- $36 = 6^2$ ✓
- $49 = 7^2$ ✓
- $64 = 8^2$ ✓
- 70: $8^2 = 64$, $9^2 = 81$ — 70 lies between them. **Not a perfect square.**
- $81 = 9^2$ ✓



Step 2: All numbers except 70 are perfect squares. 70 is the odd one out.

Answer: (B)

Q24. [↑ Go Back to Q24](#)

Solution

Concept: Identify the rule relating the three columns in each row.

Step 1 — Analyse Row 1: 5, 25, 125 = 5^1 , 5^2 , 5^3 .

Step 2 — Confirm with Row 2: 2, 4, 8 = 2^1 , 2^2 , 2^3 . ✓

Step 3 — Apply to Row 3: $n = 3$: Col 1 = $3^1 = 3$, Col 2 = $3^2 = 9$, Col 3 = $3^3 = 27$.

Why other options are wrong: (A) $18 = 3 \times 6$, (B) $21 = 3 \times 7$, (D) $30 = 3 \times 10$ — none follow the n^3 pattern.

Answer: (C)

Q25. [↑ Go Back to Q25](#)

Solution

Concept: When a net is folded into a cube, identify the three pairs of opposite faces.

Step 1 — Analyse the net: The net layout is:

[2] above [3]; horizontal row: [1] [3] [4] [6]; [5] below [3]

Step 2 — Identify opposite pairs by folding:

- Face 3 (centre) folds to face the front; 6 (rightmost) folds to become the back face. $\Rightarrow$ 3 opposite 6.
- Face 2 (top of 3) becomes the top face; 5 (bottom of 3) becomes the bottom face. $\Rightarrow$ 2 opposite 5.
- Face 1 (left of 3) becomes the left face; 4 (right of 3) becomes the right face. $\Rightarrow$ 1 opposite 4.

Step 3 — Answer: The face opposite to 4 is 1.

Why other options are wrong: (A) 2 is opposite 5, not 4. (B) 3 is opposite 6, not 4. (C) 6 is opposite 3, not 4.

Answer: (D)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	D	3	B	4	C	5	D
6	A	7	C	8	B	9	D	10	A
11	C	12	B	13	D	14	A	15	C
16	B	17	D	18	A	19	C	20	B
21	D	22	A	23	B	24	C	25	D

Click any answer in the table above to jump to the corresponding solution.

