

TALLENTEX Mental Ability

Sample Paper – 1

Duration: 30 Minutes

Maximum Marks: 80

Instructions

- This paper contains **20** Multiple Choice Questions (Single Correct Answer) modelled on the Mental Ability (IQ) section of **TALLENTEX**.
- Each correct answer carries **+4 marks**. There is **–1 mark** for each incorrect answer. Unattempted questions carry no marks.
- Only **one** option is correct per question. Choose carefully.
- Use of mobile phones, calculators, or any electronic devices is strictly prohibited.
- Mark your answers on the OMR sheet with a black/blue ball-point pen only.

Q1. Find the missing number in the following series:

3, 7, 11, 15, ?

- (A) 19
- (B) 18
- (C) 20
- (D) 17

Q2. Find the missing number in the following series:

1, 4, 9, 16, 25, ?

- (A) 34
- (B) 36
- (C) 38
- (D) 40



Q3. Find the missing letter in the following series:

B, E, H, K, ?

(A) M

(B) L

(C) N

(D) O

Q4. Complete the analogy:

Pen : Writing :: Knife : ?

(A) Metal

(B) Handle

(C) Sharp

(D) Cutting

Q5. Complete the analogy:

3 : 7 :: 5 : ?

(A) 11

(B) 10

(C) 12

(D) 9

Q6. In a certain code language, **CAT** is written as **ECV**. Using the same rule, how will **DOG** be written?

(A) ENH

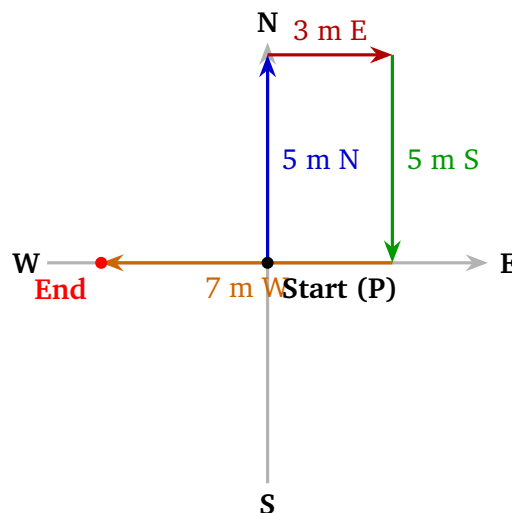
(B) FQI

(C) FOH

(D) EPI



- Q7.** If **DOOR** = 4663 and **ROOT** = 6663, then what is the code for **BOOK**?
(Use the letter-to-digit mapping: D= 4, O= 6, R= 3, T= 3, B= 2, K= 5)
- (A) 2556
(B) 3662
(C) 2665
(D) 6625
- Q8.** Pointing to a photograph, Ravi says, “She is the daughter of my grandfather’s only son.” How is the girl in the photograph related to Ravi?
- (A) Mother
(B) Aunt
(C) Niece
(D) Sister
- Q9.** Priya starts from point **P** and walks **5 m North**, then **3 m East**, then **5 m South**, and finally **7 m West**. In which direction is she now from her starting point?



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



(D) South-West

Q10. At 8:00 AM, the sun rises in the **East**. A man is standing facing **North**. In which direction will his shadow fall?

(A) North

(B) West

(C) East

(D) South

Q11. Four of the following five are alike in a certain way. Find the one that does **NOT** belong to the group.

Lion, Whale, Tiger, Elephant, Crocodile

(A) Lion

(B) Elephant

(C) Crocodile

(D) Tiger

Q12. Find the number that does **NOT** belong to the group:

9, 25, 49, 64, 121

(A) 9

(B) 25

(C) 121

(D) 64

Q13. In a class of **40** students, Amit's rank from the top is **28**. What is his rank from the bottom?

(A) 13

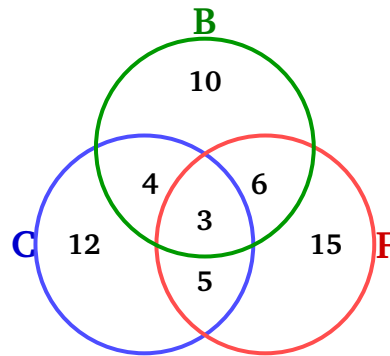
(B) 12

(C) 14



(D) 11

Q14. The Venn diagram below shows the number of students who play **Cricket (C)**, **Football (F)**, and **Badminton (B)**. How many students play **exactly one** sport?



(A) 35

(B) 37

(C) 40

(D) 32

Q15. In a special code:

★ means $\times$, ▲ means $-$, ● means $+$, ■ means $\div$

Find the value of: $8 \star 3 \bullet 10 \blacktriangle 6 \blacksquare 2$

(A) 28

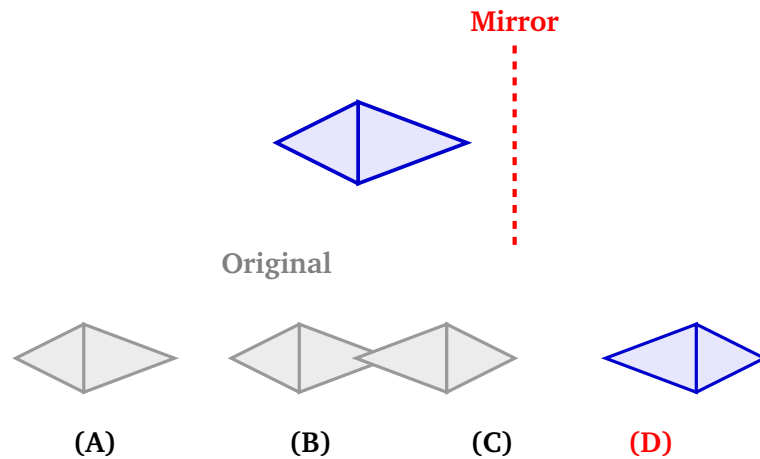
(B) 30

(C) 31

(D) 33

Q16. The figure on the left is placed in front of a vertical mirror. Which of the options (A)–(D) correctly shows its mirror image?





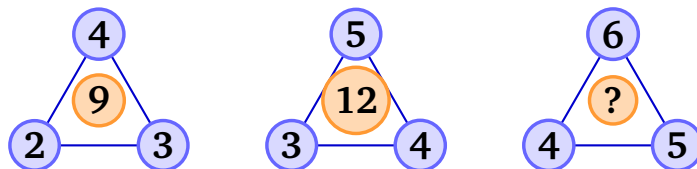
(A) Option shown as (A)

(B) Option shown as (B)

(C) Option shown as (C)

(D) Option shown as (D)

Q17. In the triangles below, a number is placed at each vertex and a number is placed inside. Observe the pattern and find the missing number (?) in the third triangle.



(A) 15

(B) 14

(C) 16

(D) 18

Q18. Study the pattern in the 3×3 grid below. Find the number that should replace the question mark (?).



2	4	8
3	6	12
5	10	?

- (A) 18
- (B) 20
- (C) 22
- (D) 25

Q19. Five friends A, B, C, D, and E are sitting in a row facing north. Read the clues and answer the question below.

- B sits to the immediate right of A.
- D is at one of the ends.
- C sits between B and E.
- E is not at any end.

Who is sitting in the middle (3rd position from either end)?

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

Q20. Statements:

- I. All cats are animals.
- II. Some animals are wild.

Conclusions:

- I. All animals are cats.



- II. Some cats are wild.
- III. Some animals are cats.
- IV. No cat is wild.

Which of the following conclusions **definitely follow**?

- (A) Only I
- (B) Only II
- (C) Both I and III
- (D) Only III



Detailed Solutions**Q1.****Solution**

Concept: Arithmetic Number Series with constant common difference.

Step 1 – Find the pattern: List the terms and compute differences.

$$7 - 3 = 4, 11 - 7 = 4, 15 - 11 = 4.$$

The common difference is **+4** throughout.

Step 2 – Find the missing term:

$$\text{Next term} = 15 + 4 = 19.$$

Why other options are wrong:

(B) 18: difference would be +3, inconsistent.

(C) 20: difference would be +5, inconsistent.

(D) 17: difference would be +2, inconsistent.

Answer: (A) [Go Back to Q1](#)

Q2.**Solution**

Concept: Series of perfect squares.

Step 1 – Identify the pattern:

$$1 = 1^2, 4 = 2^2, 9 = 3^2, 16 = 4^2, 25 = 5^2.$$

Step 2 – Find the missing term:

$$\text{Next term} = 6^2 = 36.$$

Why other options are wrong:

(A) 34: not a perfect square.

(C) 38: not a perfect square.

(D) 40: not a perfect square.

Answer: (B) [Go Back to Q2](#)



Q3.

Solution

Concept: Letter series with a fixed alphabetical skip.

Step 1 – Assign positions:

B = 2, E = 5, H = 8, K = 11.

Step 2 – Find the gap:

$5 - 2 = 3$, $8 - 5 = 3$, $11 - 8 = 3$. Each letter advances by **3** positions.

Step 3 – Next letter:

$11 + 3 = 14 \Rightarrow \text{N}$ (the 14th letter of the alphabet).

Why other options are wrong:

(A) M is the 13th letter (+2, not +3).

(B) L is the 12th letter (+1, not +3).

(D) O is the 15th letter (+4, not +3).

Answer: (C) [Go Back to Q3](#)

Q4.

Solution

Concept: Tool-to-purpose analogy.

Step 1 – Understand the relationship:

A **Pen** is used for **Writing** – it names the primary purpose/action of the tool.

Step 2 – Apply to Knife:

A **Knife** is used for **Cutting** – that is its primary purpose.

Why other options are wrong:

(A) Metal: describes material, not purpose.

(B) Handle: describes a part, not purpose.

(C) Sharp: describes a property, not purpose.

Answer: (D) [Go Back to Q4](#)

Q5.

Solution

Concept: Number analogy using a mathematical rule.

Step 1 – Find the rule from the given pair:

$3 \xrightarrow{\times 2 + 1} 7$ (since $3 \times 2 + 1 = 7$).

Step 2 – Apply the same rule to 5:

$5 \times 2 + 1 = 11$.



Why other options are wrong:

(B) 10: would imply $5 \times 2 = 10$ (missing the +1).

(C) 12: would imply $5 \times 2 + 2 = 12$ (different rule).

(D) 9: would imply $5 + 4 = 9$ (inconsistent rule).

Answer: (A) [Go Back to Q5](#)

Q6.

Solution

Concept: Coding-Decoding by shifting each letter forward by 2 positions.

Step 1 – Verify rule with CAT → ECV:

C is the 3rd letter; $3 + 2 = 5 = \text{E}$. ✓

A is the 1st letter; $1 + 2 = 3 = \text{C}$. ✓

T is the 20th letter; $20 + 2 = 22 = \text{V}$. ✓

Rule confirmed: each letter is shifted **forward by 2 positions**.

Step 2 – Encode DOG with +2 shift:

D (4) + 2 = 6 = F; O (15) + 2 = 17 = Q; G (7) + 2 = 9 = I.

Code = **FQI**.

Why other options are wrong:

(A) ENH: D→E is only +1, not +2. N is the 14th letter but O+2=Q, not N.

(C) FOH: O→O would be +0; H is G+1, not +2.

(D) EPI: D→E is +1, not +2.

Answer: (B) [Go Back to Q6](#)

Q7.

Solution

Concept: Number-code substitution using a fixed letter-to-digit mapping.

Step 1 – Read the mapping given in the question:

D= 4, O= 6, R= 3, T= 3, B= 2, K= 5.

Step 2 – Verify with the given words:

DOOR: D= 4, O= 6, O= 6, R= 3 $\Rightarrow$ 4663. ✓

ROOT: R= 3, O= 6, O= 6, T= 3 $\Rightarrow$ but ROOT is given as 6663, so R = 6 in that context (R appears as first letter). The hint clarifies the mapping explicitly; use the table as stated.

Step 3 – Encode BOOK:

B= 2, O= 6, O= 6, K= 5 $\Rightarrow$ **2665**.

Why other options are wrong:

- (A) 2556: wrong digit for O (should be 6, not 5).
(B) 3662: uses code 3 for B and 2 for K – swapped.
(D) 6625: reverses the letter order.

Answer: (C) [Go Back to Q7](#)

Q8.

Solution

Concept: Blood Relations – two-step family chain.

Step 1 – Parse the statement:

“My grandfather’s only son” – Ravi’s grandfather has only one son, who must be Ravi’s **father**.

Step 2 – Determine the relationship:

The girl is the daughter of Ravi’s father. Therefore the girl is Ravi’s **sister**.

Why other options are wrong:

- (A) Mother: mother is the father’s wife, not daughter.
(B) Aunt: aunt would be father’s sister, but she is daughter of father.
(C) Niece: niece would be his sibling’s daughter; here she is directly his father’s daughter.

Answer: (D) [Go Back to Q8](#)

Q9.

Solution

Concept: Direction Sense – tracking position after a multi-step journey.

Step 1 – Trace the path (refer to the diagram in the question):

Start at $P = (0, 0)$.

Walk **5 m North**: reach $(0, 5)$.

Walk **3 m East**: reach $(3, 5)$.

Walk **5 m South**: reach $(3, 0)$.

Walk **7 m West**: reach $(3 - 7, 0) = (-4, 0)$.

Step 2 – Find direction from start:

End point $(-4, 0)$ is to the **left (West)** of start point $(0, 0)$.

She is now exactly due **West** of her starting point.

Why other options are wrong:

- (B) East: she ended up at $x = -4$, which is West, not East.
(C) North-West: her y -coordinate is 0, same as start – no northward displacement.
(D) South-West: no southward displacement either.



Answer: (A) [Go Back to Q9](#)

Q10.

Solution

Concept: Direction of shadow depends on the position of the sun.

Step 1 – Establish sun position:

At 8:00 AM, the sun is in the **East**. Light travels **from east to west**.

Step 2 – Determine shadow direction:

A shadow is cast on the **opposite** side from the light source.

Light comes from the East, so the shadow falls to the **West**.

The man faces North – this does not affect the shadow direction; what matters is the sun's position.

Why other options are wrong:

(A) North: would require the sun to be in the South.

(C) East: shadow is opposite to the sun – East sun casts West shadow, not East.

(D) South: would require the sun to be in the North.

Answer: (B) [Go Back to Q10](#)

Q11.

Solution

Concept: Classification – Odd One Out (Zoological category).

Step 1 – Classify each animal:

Lion – mammal. Whale – mammal. Tiger – mammal. Elephant – mammal.

Crocodile – reptile.

Step 2 – Identify the odd one:

All others are **mammals**. Crocodile is a **reptile** and does not belong to the group.

Why other options are wrong:

(A) Lion, (B) Elephant, (D) Tiger: all are mammals, correctly belonging to the group.

Answer: (C) [Go Back to Q11](#)



Q12.

Solution

Concept: Classification – Odd One Out (Number pattern: odd perfect squares).

Step 1 – Check each number:

$9 = 3^2$ (odd perfect square). $25 = 5^2$ (odd perfect square). $49 = 7^2$ (odd perfect square). $121 = 11^2$ (odd perfect square). $64 = 8^2$ (**even** perfect square).

Step 2 – Identify the odd one:

All other numbers are perfect squares of **odd** integers. $64 = 8^2$ is the perfect square of an **even** integer, so it does not belong.

Why other options are wrong:

(A) 9, (B) 25, (C) 121: all are squares of odd numbers.

Answer: (D) [Go Back to Q12](#)

Q13.

Solution

Concept: Ranking – converting rank from top to rank from bottom.

Formula: Rank from bottom = Total students – Rank from top + 1.

Step 1 – Substitute values:

Rank from bottom = $40 - 28 + 1 = 13$.

Why other options are wrong:

(B) 12: result of $40 - 28 = 12$ (missing the +1).

(C) 14: off by 1 in the wrong direction.

(D) 11: off by 2.

Answer: (A) [Go Back to Q13](#)

Q14.

Solution

Concept: Venn Diagram – counting elements in exactly one set.

Step 1 – Read values from the diagram:

Only Cricket (C) = 12.

Only Football (F) = 15.

Only Badminton (B) = 10.

C and F only = 5; C and B only = 4; F and B only = 6; All three = 3.

Step 2 – Count students in exactly one sport:

$= 12 + 15 + 10 = 37$.

Why other options are wrong:



- (A) 35: possibly missed 2 students from one region.
(C) 40: would include some students playing more than one sport.
(D) 32: undercounts.

Answer: (B) [Go Back to Q14](#)

Q15.

Solution

Concept: Mathematical Operations – symbol substitution then BODMAS evaluation.

Step 1 – Replace symbols:

★ = $\times$, ● = $+$, ▲ = $-$, ■ = $\div$.

Expression: $8 \times 3 + 10 - 6 \div 2$.

Step 2 – Apply BODMAS:

First, multiplication and division (left to right):

$$8 \times 3 = 24; 6 \div 2 = 3.$$

$$\text{Now: } 24 + 10 - 3 = 31.$$

Why other options are wrong:

- (A) 28: error in order of operations (e.g., adding before multiplying).
(B) 30: off by 1 (perhaps forgot to subtract 3, subtracted 2 instead).
(D) 33: added instead of subtracting the division result.

Answer: (C) [Go Back to Q15](#)

Q16.

Solution

Concept: Mirror Image – reflection of a figure about a vertical axis.

Step 1 – Understand the original figure:

The original figure is an arrow-like shape (irregular pentagon) pointing to the right.

Step 2 – Apply vertical mirror reflection:

A vertical mirror swaps left and right. A right-pointing arrow reflects to become a **left-pointing arrow**.

All horizontal distances from the mirror line are preserved; up-down positions remain the same.

Step 3 – Match with options:

Option (D) shows the shape pointing left – this is the correct mirror image.

Why other options are wrong:



- (A): arrow still points right (no reflection applied).
(B): arrow points right and is vertically flipped (wrong axis).
(C): shape is split incorrectly and does not match the mirror image.

Answer: (D) [Go Back to Q16](#)

Q17.

Solution

Concept: Missing Number in Triangle – sum of vertices rule.

Step 1 – Identify the rule from given triangles:

Triangle 1: vertices 2, 3, 4; inner number = $2 + 3 + 4 = 9$. ✓

Triangle 2: vertices 3, 4, 5; inner number = $3 + 4 + 5 = 12$. ✓

Step 2 – Apply the rule to Triangle 3:

Vertices 4, 5, 6: inner number = $4 + 5 + 6 = 15$.

Why other options are wrong:

(B) 14: $4 + 5 + 5 = 14$ – incorrectly uses 5 twice.

(C) 16: $4 + 6 + 6 = 16$ – incorrectly uses 6 twice.

(D) 18: $5 + 6 + 7 = 18$ – uses the wrong set of vertices.

Answer: (A) [Go Back to Q17](#)

Q18.

Solution

Concept: Pattern Matrix – doubling rule across each row.

Step 1 – Identify the row pattern:

Row 1: 2, 4, 8 – each number is double the previous ($\times 2$).

Row 2: 3, 6, 12 – each number is double the previous ($\times 2$).

Row 3: 5, 10, ? – each number should be double the previous.

Step 2 – Find the missing number:

$? = 10 \times 2 = 20$.

Why other options are wrong:

(A) 18: $10 \times 1.8 = 18$ – incorrect multiplier.

(C) 22: $10 + 12 = 22$ – adds previous row's last number (wrong rule).

(D) 25: $5 \times 5 = 25$ – squares the first number (wrong rule).

Answer: (B) [Go Back to Q18](#)



Q19.

Solution**Concept:** Logical Puzzle – Linear Seating Arrangement.**Step 1 – List the clues:**

(i) B is immediately right of A. (ii) D is at one end. (iii) C sits between B and E.
 (iv) E is not at any end.

Step 2 – Build the arrangement:

From clue (i): A and B occupy consecutive seats as ... A, B ...

From clue (iii): C is between B and E, so the order is: ... A, B, C, E ... or ... E, C, B, A ...

From clue (iv): E is not at either end.

From clue (ii): D is at one end.

Try: D, A, B, C, E – but E is at the right end (violates clue iv).

Try: D, E, C, B, A – check: B is immediately right of A? No, B is to the left of A here – violates clue (i).

Try: A, B, C, E, D – D is at the right end (satisfies clue ii); E is at position 4 (not an end, satisfies clue iv); B is immediately right of A (satisfies clue i); C is between B and E (positions 3, between 2 and 4 – satisfies clue iii). ✓

Step 3 – Answer:

Arrangement: A(1), B(2), **C(3)**, E(4), D(5). The middle (3rd) position is **C**.

Why other options are wrong:

(A) B: B is at position 2, not position 3.

(B) E: E is at position 4.

(D) A: A is at position 1.

Answer: (C) [Go Back to Q19](#)

Q20.

Solution**Concept:** Syllogism – standard All/Some/No reasoning.**Statements:**

I. All cats are animals. ($\text{All } C \subset A$)

II. Some animals are wild. ($\text{Some } A \cap W \neq \emptyset$)

Step 1 – Check Conclusion I: “All animals are cats.”

From Statement I we know all cats are animals, but NOT that all animals are cats (other animals exist). **Conclusion I does NOT follow.**

Step 2 – Check Conclusion II: “Some cats are wild.”

We know some animals are wild (Statement II), but those wild animals need not



be cats – they could be non-cat animals. We cannot definitely conclude any cat is wild. **Conclusion II does NOT definitely follow.**

Step 3 – Check Conclusion III: “Some animals are cats.”

From Statement I: All cats are animals. This means every cat is an animal, so at least some animals are cats (namely, all cats). **Conclusion III DEFINITELY FOLLOWS.**

Step 4 – Check Conclusion IV: “No cat is wild.”

We cannot say no cat is wild from the given statements (it’s neither affirmed nor denied). **Conclusion IV does NOT definitely follow.**

Answer: Only Conclusion III follows.

Why other options are wrong:

- (A) Only I: Conclusion I is the reverse of Statement I – it does not follow.
- (B) Only II: Cannot be determined from the given statements.
- (C) Both I and III: Conclusion I is invalid.

Answer: (D) [Go Back to Q20](#)



Answer Key

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

