TALLENTEX Mental Ability

Sample Paper – 2

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 term in the series: $2,\ 6,\ 18,\ 54,\ ?$

(A) 108

(B) 162

(C) 144

(D) 216

Q2. What comes next in the series: $1,\ 8,\ 27,\ 64,\ ?$

(A) 100

(B) 121

(C) 125

(D) 144

Q3. Find the missing letter in the series: Z, X, V, T, ?

(A) U

(B) Q

(C) P

(D) R

Q4. Choose the correct option to complete the analogy:

Chapter : Book :: Verse : ?

(A) Poem

(B) Author

(C) Paragraph

(D) Library

Q5. Find the missing number:

16 : 4 :: 81 : ?

(A) 18

(B) 9

(C) 27

(D) 12

Q6. In a certain code language, **COME** is written as **EMOC**. Using the same rule, how will **MIND** be written?

(A) DMIN

(B) MNID

(C) DNIM

(D) NMID

Q7. In a certain code, $\bigstar = 3$, $\blacksquare = 5$, $\bullet = 7$.

What is the value of $(\bigstar + \blacksquare) \times \bullet$?

(A) 35

(B) 38

(C) 48

(D) 56

Q8. Pointing to a woman, Ravi says, “She is the daughter of the only sister of my father.” How is the woman related to Ravi?

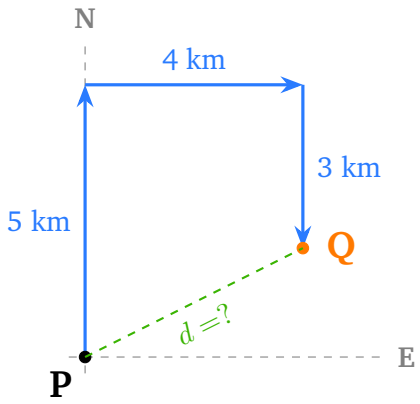
(A) Cousin

(B) Niece

(C) Sister

(D) Aunt

Q9. Priya starts from point **P**, walks **5 km North**, then turns **East** and walks **4 km**, then turns **South** and walks **3 km** to reach point **Q**. Study the path diagram and find the straight-line distance from **P** to **Q**.



(A) $\sqrt{17}$ km

(B) $2\sqrt{5}$ km

(C) $3\sqrt{3}$ km

(D) $\sqrt{41}$ km

Q10. Arun faces **North**. He turns **90° clockwise**, then **90° anti-clockwise**, and finally **180° clockwise**. Which direction is he now facing?

(A) North

(B) East

(C) South

(D) West

Q11. Four of the following five are alike in a certain way and form a group. Find the **odd one out**:

Mars, Jupiter, Moon, Saturn, Neptune

(A) Mars

(B) Jupiter

(C) Saturn

(D) Moon

Q12. Find the **odd one out** among the following numbers:

51, 57, 63, 37, 69

(A) 37

(B) 57

(C) 63

(D) 51

Q13. In a class, **Meena** ranks **8th from the top** and **26th from the bottom**. **Seema** ranks **15th from the top**. How many students are there in the class **between** Meena and Seema?

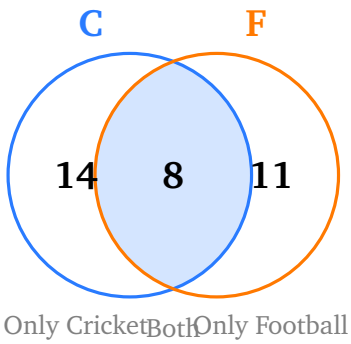
(A) 5

(B) 6

(C) 7

(D) 8

Q14. The two circles below represent students who play **Cricket (C)** and **Football (F)**. Numbers shown denote students in each region. How many students play **at least one** of the two sports?



(A) 25

(B) 22

(C) 33

(D) 30

Q15. If **A = 1, B = 2, C = 3, . . . , Z = 26**, what is the value of the word **PILE**?

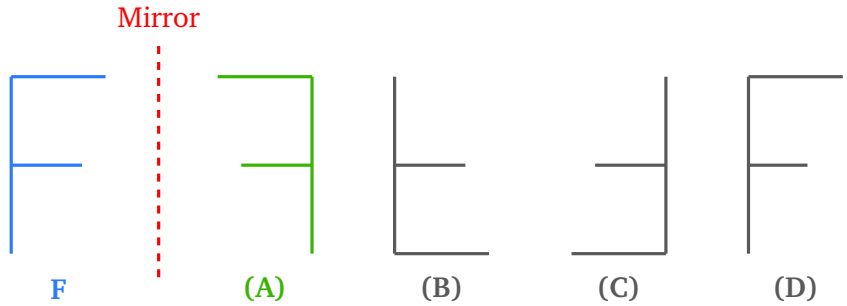
(A) 36

(B) 38

(C) 40

(D) 42

Q16. Choose the correct **mirror image** of the letter **F** shown below, when a vertical mirror is placed to its right.



(A) Option (A) – reversed spine on right, bars extend left

(B) Option (B) – upside-down F

(C) Option (C) – rotated 180°

(D) Option (D) – same as original

Q17. Find the missing number **?** in the grid below.

(Hint: The row sums follow a pattern.)

2	5	8
3	6	9
4	?	10

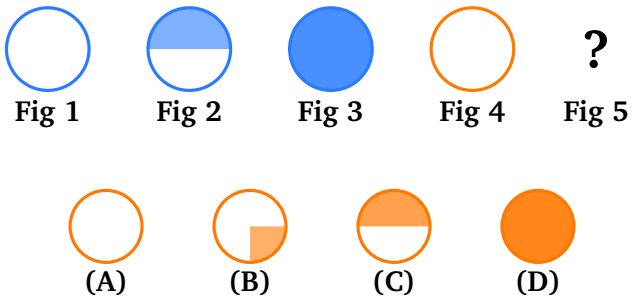
(A) 6

(B) 7

(C) 8

(D) 9

Q18. Study the sequence of figures below and choose the figure that should come **next** (Fig 5).



(A) Orange circle – empty (no fill)

(B) Orange circle – lower-right quarter filled

(C) Orange circle – top half filled

(D) Orange circle – fully filled

Q19. The present age of a father is **4 times** the age of his son. **5 years ago**, the father was **7 times** as old as his son. What is the **present age of the son**?

(A) 8 years

(B) 12 years

(C) 15 years

(D) 10 years

Q20. **Statement:** All books are pens. Some pens are pencils.

Conclusions:

I. Some books are pencils.

II. All pens are books.

Which conclusion(s) follow?

(A) Neither I nor II follows

(B) Only I follows

(C) Only II follows

(D) Both I and II follow

Detailed Solutions

Q1.

Solution

Topic: Number Series – Geometric Ratio

Series: $2,\ 6,\ 18,\ 54,\ ?$

Pattern: Each term is multiplied by **3** (common ratio $r = 3$).

$$2 \xrightarrow{\times 3} 6 \xrightarrow{\times 3} 18 \xrightarrow{\times 3} 54 \xrightarrow{\times 3} \mathbf{162}$$

Answer: (B) Go Back to Q1

Q2.

Solution

Topic: Number Series – Perfect Cubes

Series: $1,\ 8,\ 27,\ 64,\ ?$

Pattern: $1^3 = 1, \quad 2^3 = 8, \quad 3^3 = 27, \quad 4^3 = 64, \quad 5^3 = \mathbf{125}$

The next term is $5^3 = \mathbf{125}$.

Answer: (C) Go Back to Q2

Q3.

Solution

Topic: Letter Series – Reverse Alphabet, Skip One

Series: Z, X, V, T, ?

Pattern: Each letter decreases by 2 positions in the alphabet.

$$Z(26) \xrightarrow{-2} X(24) \xrightarrow{-2} V(22) \xrightarrow{-2} T(20) \xrightarrow{-2} \mathbf{R(18)}$$

The missing letter is **R**.

Answer: (D) Go Back to Q3

Q4.

Solution

Topic: Analogy – Part-Whole Relationship

Chapter : Book – A chapter is a distinct division (part) of a book.

Similarly, **Verse : Poem** – A verse is a distinct stanza (part) of a poem.

Just as multiple chapters constitute a book, multiple verses constitute a poem.

Answer: (A) Go Back to Q4

Q5.

Solution

Topic: Number Analogy – Square Root Relation

16 : 4 $\Rightarrow \sqrt{16} = 4$

81 : ? $\Rightarrow \sqrt{81} = \mathbf{9}$

The relationship is: the second number is the positive square root of the first number.

Answer: (B) Go Back to Q5

Q6.

Solution

Topic: Coding-Decoding – Reverse Word Code

Rule: Each word is written in **reverse order** (letters reversed).

Verification: COME $= C\text{-}O\text{-}M\text{-}E \xrightarrow{\text{reverse}} E\text{-}M\text{-}O\text{-}C =$ EMOC ✓

Applying to **MIND** $= M\text{-}I\text{-}N\text{-}D$:

$$M\text{-}I\text{-}N\text{-}D \xrightarrow{\text{reverse}} D\text{-}N\text{-}I\text{-}M = \textbf{DNIM}$$

Answer: (C) Go Back to Q6

Q7.

Solution

Topic: Coding-Decoding – Symbol/Number Substitution

Given: ★ = 3, ■ = 5, • = 7

Expression: $(★ + ■) \times •$

Applying BODMAS (bracket first, then multiplication):

$$★ + ■ = 3 + 5 = 8$$

$$8 \times • = 8 \times 7 = \mathbf{56}$$

Answer: (D) Go Back to Q7

Q8.

Solution

Topic: Blood Relations – Three-Step Family Relation

Ravi says: "She is the daughter of the **only sister of my father**."

- Ravi's father's only sister = Ravi's **paternal aunt**
- The woman is the **daughter** of Ravi's paternal aunt
- Daughter of one's aunt = one's **Cousin**

The woman is Ravi's Cousin.

Answer: (A) Go Back to Q8

Q9.

Solution

Topic: Direction Sense – Straight-Line Distance

Tracing Priya's path (taking P as origin):

- 5 km North: position = $(0,\ 5)$
- 4 km East: position = $(4,\ 5)$
- 3 km South: position = $Q = (4,\ 2)$

Straight-line distance from $P(0,0)$ to $Q(4,2)$:

$$PQ = \sqrt{(4-0)^2 + (2-0)^2} = \sqrt{16+4} = \sqrt{20} = 2\sqrt{5}\text{ km}$$

Answer: (B) Go Back to Q9

Q10.

Solution

Topic: Direction Sense – Net Rotation

Starting direction: **North**.

(a) Turn 90° **clockwise**: North $\longrightarrow$ **East**

(b) Turn 90° **anti-clockwise**: East $\longrightarrow$ **North**

(c) Turn 180° **clockwise**: North $\longrightarrow$ **South**

Arun is now facing South.

Net rotation check: $+90^\circ - 90^\circ + 180^\circ = +180^\circ$ (clockwise from North) = **South** ✓

Answer: (C) Go Back to Q10

Q11.

Solution

Topic: Classification – Odd One Out (Planetary Bodies)

Examining each item:

- **Mars** – a planet orbiting the Sun ✓
- **Jupiter** – a planet orbiting the Sun ✓
- **Moon** – Earth's **natural satellite** (not a planet) ★
- **Saturn** – a planet orbiting the Sun ✓
- **Neptune** – a planet orbiting the Sun ✓

All others are planets; **Moon** is a natural satellite. **Odd one out: Moon (D).**

Answer: (D) Go Back to Q11

Q12.

Solution

Topic: Classification – Odd One Out (Prime vs Composite)

- $51 = 3 \times 17$ (composite)
- $57 = 3 \times 19$ (composite)
- $63 = 7 \times 9$ (composite)
- 37 – divisible only by 1 and 37, so **prime** ★
- $69 = 3 \times 23$ (composite)

37 is the only prime number among the given options. **Odd one out: 37 (A).**

Answer: (A) Go Back to Q12

Q13.

Solution

Topic: Ranking – Students Between Two Ranks

Step 1: Find total students in the class.
Meena is 8th from top and 26th from bottom:

$$\text{Total students} = 8 + 26 - 1 = \mathbf{33}$$

Step 2: Find students between Meena and Seema.
Meena's rank from top $= 8$; Seema's rank from top $= 15$.
Students strictly between ranks 8 and 15 (from top):

$$\text{Students between} = 15 - 8 - 1 = \mathbf{6}$$

Answer: (B) Go Back to Q13

Q14.

Solution

Topic: Venn Diagram – Union of Two Sets

From the diagram:

- Students playing only Cricket $= 14$
- Students playing both Cricket and Football $= 8$
- Students playing only Football $= 11$

Students playing at least one sport $= n(C \cup F)$:

$$n(C \cup F) = 14 + 8 + 11 = \mathbf{33}$$

Answer: (C) Go Back to Q14

Q15.

Solution

Topic: Mathematical Operations – Letter Value Code

Using A $= 1$, B $= 2$, $\ldots$, Z $= 26$:

$$P = 16$$
$$I = 9$$
$$L = 12$$
$$E = 5$$

Value of **PILE**:

$$P + I + L + E = 16 + 9 + 12 + 5 = \mathbf{42}$$

Answer: (D) Go Back to Q15

Q16.

Solution

Topic: Mirror Image – Capital Letter F

When a **vertical mirror** is placed to the **right** of the letter F:

- The vertical spine (originally on the left) appears on the **right** in the mirror image.
- The horizontal bars (originally extending to the right) now extend to the **left**.
- The top bar and middle bar remain at the same heights.

This produces a reversed F with the spine on the right and bars pointing left, which matches **Option (A)**.

Answer: (A) Go Back to Q16

Q17.

Solution

Topic: Missing Number in Grid – Row Sum Pattern

Computing row sums:

$$\begin{aligned} \text{Top row:} \quad & 2+5+8=15 \\ \text{Middle row:} \quad & 3+6+9=18 \\ \text{Bottom row:} \quad & 4{+}?+10=? \end{aligned}$$

Pattern: Row sums increase by 3 (15, 18, 21).
So the bottom row must sum to **21**:

$$4{+}?+10=21 \implies ?=21-14=\mathbf{7}$$

Answer: (B) Go Back to Q17

Q18.

Solution

Topic: Pattern Completion – Figure Series

Analysing the sequence:

- **Fig 1**: Blue circle – *empty* (0% filled)
- **Fig 2**: Blue circle – *top half filled* (50% filled)
- **Fig 3**: Blue circle – *fully filled* (100% filled)
- **Fig 4**: Orange circle – *empty* (0% filled) – colour changes, fill pattern **restarts**
- **Fig 5**: Orange circle – *top half filled* (50% filled) – follows the same progression

Fig 5 is an **orange circle with the top half filled**, matching **Option (C)**.

Answer: (C) Go Back to Q18

Q19.

Solution

Topic: Logical Puzzle – Age-Based Problem

Let the present age of the son $= s$ years.
Then present age of the father $= 4s$ years.

Condition (5 years ago): Father's age was 7 times son's age.

$$4s - 5 = 7(s - 5)$$
$$4s - 5 = 7s - 35$$
$$35 - 5 = 7s - 4s$$
$$30 = 3s$$
$$s = \mathbf{10}$$

Present age of son = 10 years.
Father's present age $= 4 \times 10 = 40$ years.

Verification: 5 years ago: son was 5, father was 35. $35 = 7 \times 5$ ✓

Answer: (D) Go Back to Q19

Q20.

Solution

Topic: Statement-Conclusion – Syllogism

Statements:

(a) All books are pens. (Books $\subseteq$ Pens)

(b) Some pens are pencils. (Pens $\cap$ Pencils $\neq \varnothing$)

Testing Conclusion I: "Some books are pencils."
Although all books are pens, the pencils that are pens may be a subset of pens that does not include any book. We **cannot conclude** that any book is a pencil. **Conclusion I does not follow.**

Testing Conclusion II: "All pens are books."
Statement 1 says all books are pens (not the converse). There may be pens that are not books. **Conclusion II does not follow.**

Neither Conclusion I nor Conclusion II follows.

Answer: (A) Go Back to Q20

Answer Key

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