

MAH B.Ed CET Integrated B.Ed-M.Ed Mental Ability

Sample Paper – 7

Duration: 36 Minutes

Maximum Marks: 40

Instructions

- This paper contains **40** Multiple Choice Questions (Single Correct Answer), modelled on the Mental Ability portion of **MAH B.Ed CET Integrated B.Ed-M.Ed** entrance.
- Each correct answer carries **+1 mark**. There is **no negative marking** for incorrect or unattempted answers.
- Only **one** option is correct. Choose carefully.
- Topics: Number Series, Letter Series, Analogies, Coding-Decoding, Classification, Syllogism, Blood Relations, Direction Sense, Dice Problems, Pattern Recognition.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Q1. Find the missing number in the series: 3, 6, 16, 32, 42, ____

- (A) 80
- (B) 82
- (C) 84
- (D) 88

Q2. Find the missing number in the series: 5, 10, 9, 18, 17, ____

- (A) 30
- (B) 32
- (C) 36
- (D) 34



- Q3.** Find the missing number in the series: 4, 5, 7, 10, 14, ____
- (A) 19
(B) 18
(C) 20
(D) 21
- Q4.** Find the missing number in the series: 100, 91, 84, 79, 76, ____
- (A) 73
(B) 75
(C) 74
(D) 72
- Q5.** Find the missing number in the series: 2, 3, 5, 8, 13, 21, ____
- (A) 25
(B) 30
(C) 32
(D) 34
- Q6.** Find the missing number in the series: 6, 10, 15, 21, 28, ____
- (A) 35
(B) 34
(C) 36
(D) 38
- Q7.** Find the missing letter in the series: A, E, I, O, ____
- (A) V
(B) U
(C) T



(D) Y

Q8. Find the missing letter in the series: D, G, J, M, ____

(A) P

(B) O

(C) Q

(D) N

Q9. Find the missing group in the series: ACE, GIK, MOQ, ____

(A) RTU

(B) STV

(C) RTV

(D) SUW

Q10. Find the missing letter in the series: B, D, F, H, ____

(A) I

(B) K

(C) J

(D) L

Q11. Geologist : Rocks :: Ornithologist : ____

(A) Minerals

(B) Birds

(C) Mountains

(D) Trees

Q12. Cup : Tea :: Bottle : ____

(A) Water



- (B) Milk
- (C) Glass
- (D) Juice

Q13. Teacher : Teaches :: Doctor : _____

- (A) Diagnoses
- (B) Operates
- (C) Prescribes
- (D) Treats

Q14. Hot : Cold :: Day : _____

- (A) Dark
- (B) Bright
- (C) Night
- (D) Cool

Q15. 36 : 6 :: 49 : _____

- (A) 6
- (B) 7
- (C) 8
- (D) 9

Q16. 5 : 30 :: 6 : _____

- (A) 42
- (B) 36
- (C) 40
- (D) 30

Q17. 2 : 6 :: 4 : _____



- (A) 12
- (B) 16
- (C) 14
- (D) 20

Q18. If each letter is shifted **4 places forward** in the alphabet, what is the code for **FACE**?

- (A) IEFH
- (B) JDGI
- (C) JEGI
- (D) JEFH

Q19. In a code, each letter is replaced by **twice its position value** in the alphabet ($A = 1, B = 2, \dots$). What is the code value of **ACE**?

- (A) 9
- (B) 18
- (C) 10
- (D) 16

Q20. In a code, the **first letter** of a word is moved to the **end**. How is **LIVE** coded?

- (A) IVEL
- (B) LIVE
- (C) IVLE
- (D) VELI

Q21. In a code, a word is represented by the **total number of letters** in it. What is the code for **MATHEMATICS**?

- (A) 9



- (B) 10
- (C) 12
- (D) 11

Q22. In a code, each letter is shifted forward by its position in the word (1st letter +1, 2nd letter +2, 3rd letter +3, ...). How is **DOG** coded?

- (A) EQH
- (B) FQJ
- (C) EQJ
- (D) FRJ

Q23. Which one does **not** belong to the group?

Iron Copper Wood Aluminium

- (A) Iron
- (B) Wood
- (C) Copper
- (D) Aluminium

Q24. Which one does **not** belong to the group?

16 25 36 48

- (A) 48
- (B) 16
- (C) 25
- (D) 36

Q25. Which one does **not** belong to the group?

Mercury Venus Earth Jupiter

- (A) Mercury



- (B) Venus
- (C) Earth
- (D) Jupiter

Q26. Which one does **not** belong to the group?

Sonnet Haiku Elegy Novel

- (A) Sonnet
- (B) Haiku
- (C) Novel
- (D) Elegy

Q27. Statements:

- (i) Some students are intelligent.
- (ii) All intelligent people succeed.

Conclusions:

- I. Some students succeed.
- II. All students succeed.

Which conclusion(s) follow(s)?

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

Q28. Statements:

- (i) All trains have wheels.
- (ii) No wheels are square.

Conclusions:

- I. No trains are square.
- II. Some trains are square.

Which conclusion(s) follow(s)?



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

Q29. Statements:

- (i) Some doctors are rich.
- (ii) All rich people have cars.

Conclusions:

- I. Some doctors have cars.
- II. All doctors have cars.

Which conclusion(s) follow(s)?

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

Q30. Statements:

- (i) No lakes are oceans.
- (ii) Some rivers are oceans.

Conclusions:

- I. Some rivers are not lakes.
- II. No rivers are lakes.

Which conclusion(s) follow(s)?

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

Q31. Pointing to a boy, a man says: "He is the son of my father's only daughter." How is the boy related to the man?



- (A) Son
- (B) Nephew
- (C) Cousin
- (D) Brother

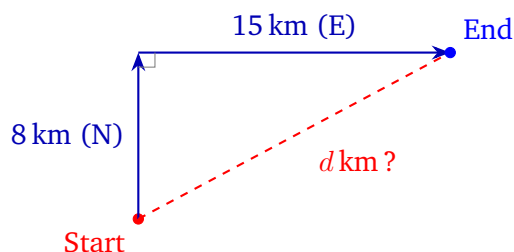
Q32. P is Q's brother. Q is R's sister. R is S's father. How is P related to S?

- (A) Uncle
- (B) Cousin
- (C) Father
- (D) Brother

Q33. A woman says to a man: "Your mother's husband's daughter is my mother." How is the woman related to the man?

- (A) Sister
- (B) Daughter
- (C) Mother
- (D) Niece

Q34. A man starts from a point and walks **8 km towards North**. He then turns right and walks **15 km towards East**. What is his straight-line distance from the starting point?

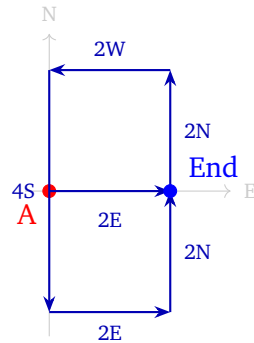


- (A) 8 km
- (B) 15 km
- (C) 17 km



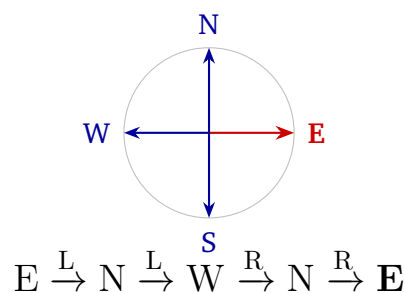
(D) 23 km

- Q35.** From point A a person walks 2 km East, 2 km North, 2 km West, 4 km South, 2 km East, and finally 2 km North. Where does he end up relative to A?



- (A) At A (starting point)
 (B) 2 km East of A
 (C) 4 km South of A
 (D) 2 km North of A

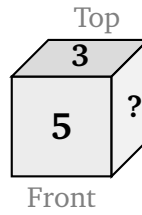
- Q36.** A man starts facing **East**. He turns left, then turns left again, then turns right, and finally turns right again. What direction is he now facing?



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

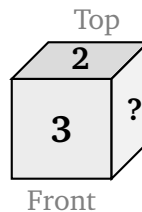


- Q37.** In a **standard die** (opposite faces always sum to 7), the number **5** is on the front face and the number **3** is on the top face. What number is on the **back face**?



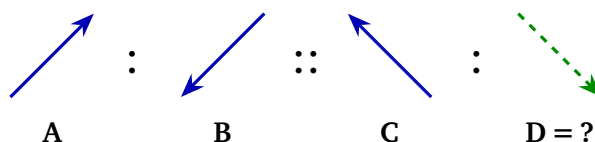
- (A) 4
(B) 6
(C) 1
(D) 2

- Q38.** A **standard die** (opposite faces always sum to 7) shows **2** on the top face and **3** on the front face. What is the **sum** of the numbers on the **bottom** face and the **back** face?



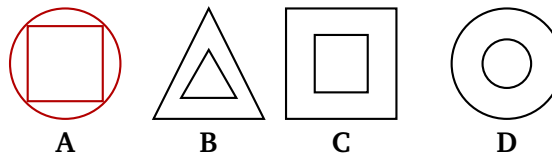
- (A) 7
(B) 14
(C) 9
(D) 11

- Q39.** The figures follow the rule: **each figure is a 180° rotation of the figure in the same pair.** $A : B :: C : ?$ — Identify Figure D.



- (A) ↗ (upper-right)
- (B) ↘ (lower-right)
- (C) ↖ (upper-left)
- (D) ↙ (lower-left)

Q40. Rule: Each outer shape contains the **same shape** inside it (smaller). Which figure **breaks** this rule?



- (A) Figure A
- (B) Figure B
- (C) Figure C
- (D) Figure D



Detailed Solutions

Q1.

Solution

Concept — Alternating $\times 2$ and $+10$:

The series 3, 6, 16, 32, 42, ____ follows an alternating rule: $\times 2$, $+10$, $\times 2$, $+10$, $\times 2$, ...

Step 1: $3 \times 2 = 6$; $6 + 10 = 16$; $16 \times 2 = 32$; $32 + 10 = 42$.

Step 2: The next operation is $\times 2$: $42 \times 2 = 84$.

Why other options are wrong:

- Option A (80): $42 + 38 = 80$ — no consistent alternating pattern.
- Option B (82): Does not fit the $\times 2$ step at this position.
- Option D (88): $42 \times 2 + 4 = 88$ — overstates the result.

Answer: (C) [↑ Go Back to Q 1](#)

Q2.

Solution

Concept — Alternating $\times 2$ and -1 :

The series 5, 10, 9, 18, 17, ____ follows an alternating rule: $\times 2$, -1 , $\times 2$, -1 , $\times 2$, ...

Step 1: $5 \times 2 = 10$; $10 - 1 = 9$; $9 \times 2 = 18$; $18 - 1 = 17$.

Step 2: The next operation is $\times 2$: $17 \times 2 = 34$.

Why other options are wrong:

- Option A (30): $17 + 13 = 30$ — no consistent pattern.
- Option B (32): $17 + 15 = 32$ — does not fit the alternating rule.
- Option C (36): $17 \times 2 + 2 = 36$ — too large for the pattern.

Answer: (D) [↑ Go Back to Q 2](#)

Q3.

Solution

Concept — Increasing differences (+1, +2, +3, +4, +5, ...):

The series 4, 5, 7, 10, 14, ____ has differences that increase by 1 each time.

Step 1: Differences: $5 - 4 = 1$; $7 - 5 = 2$; $10 - 7 = 3$; $14 - 10 = 4$.

Step 2: The next difference is $+5$: $14 + 5 = 19$.

Why other options are wrong:

- Option B (18): Requires a difference of $+4$ again — pattern demands $+5$.
- Option C (20): Requires a difference of $+6$ — skips one step.



- Option D (21): Requires a difference of $+7$ — skips two steps.

Answer: (A) [↑ Go Back to Q 3](#)

Q4.

Solution

Concept — Decreasing differences ($-9, -7, -5, -3, -1, \dots$):

The series 100, 91, 84, 79, 76, ____ has differences that decrease by 2 in magnitude each time.

Step 1: Differences: $91 - 100 = -9$; $84 - 91 = -7$; $79 - 84 = -5$; $76 - 79 = -3$.

Step 2: The next difference is -1 : $76 - 1 = 75$.

Why other options are wrong:

- Option A (73): $76 - 3 = 73$ — repeats the previous difference.
- Option C (74): $76 - 2 = 74$ — does not match the decreasing pattern.
- Option D (72): $76 - 4 = 72$ — differences are increasing, not decreasing.

Answer: (B) [↑ Go Back to Q 4](#)

Q5.

Solution

Concept — Fibonacci sequence (each term = sum of two preceding terms):

The series 2, 3, 5, 8, 13, 21, ____ follows the Fibonacci rule.

Step 1: $2 + 3 = 5$; $3 + 5 = 8$; $5 + 8 = 13$; $8 + 13 = 21$.

Step 2: $13 + 21 = 34$.

Why other options are wrong:

- Option A (25): $21 + 4 = 25$ — no basis in the pattern.
- Option B (30): $21 + 9 = 30$ — not the Fibonacci sum.
- Option C (32): $21 + 11 = 32$ — does not follow the rule.

Answer: (D) [↑ Go Back to Q 5](#)

Q6.

Solution

Concept — Increasing differences ($+4, +5, +6, +7, +8, \dots$):

The series 6, 10, 15, 21, 28, ____ has differences that increase by 1 each time (triangular-number pattern).

Step 1: Differences: $10 - 6 = 4$; $15 - 10 = 5$; $21 - 15 = 6$; $28 - 21 = 7$.

Step 2: The next difference is $+8$: $28 + 8 = 36$.



Why other options are wrong:

- Option A (35): $28 + 7 = 35$ — repeats the previous difference.
- Option B (34): $28 + 6 = 34$ — differences are decreasing, not increasing.
- Option D (38): $28 + 10 = 38$ — skips one step in the pattern.

Answer: (C) [↑ Go Back to Q 6](#)

Q7.

Solution**Concept — Vowels of the English alphabet:**

The series A, E, I, O, ___ lists the five English vowels in order.

Step 1: A, E, I, O are the first four vowels.

Step 2: The fifth and final vowel is U.

Why other options are wrong:

- Option A (V): V is a consonant, not a vowel.
- Option C (T): T is a consonant.
- Option D (Y): Y is sometimes considered a semi-vowel but is not one of the five standard vowels that complete this sequence.

Answer: (B) [↑ Go Back to Q 7](#)

Q8.

Solution**Concept — Every third letter (+3 positions each step):**

The series D, G, J, M, ___ advances by 3 positions each time.

Step 1: D(4), G(7), J(10), M(13) — each letter is 3 positions ahead.

Step 2: M is the 13th letter; $13 + 3 = 16$, which is P.

Why other options are wrong:

- Option B (O): O is the 15th letter; $13 + 2 = 15$ — only 2 positions, not 3.
- Option C (Q): Q is the 17th letter; $13 + 4 = 17$ — 4 positions, not 3.
- Option D (N): N is the 14th letter; $13 + 1 = 14$ — only 1 position ahead.

Answer: (A) [↑ Go Back to Q 8](#)

Q9.

Solution**Concept — Groups of three consecutive odd-positioned letters, each group shifted by +6:**

The series ACE, GIK, MOQ, _____ consists of groups where each letter is 2 positions



after the previous one within the group, and consecutive groups start 6 positions apart.

Step 1: ACE: A(1), C(3), E(5). GIK: G(7), I(9), K(11) — shift of +6 from start. MOQ: M(13), O(15), Q(17) — shift of +6.

Step 2: Next group starts at $13 + 6 = 19 = S$; then U(21), W(23). Answer: SUW.

Why other options are wrong:

- Option A (RTU): R(18) is even-positioned; does not follow the odd-position pattern.
- Option B (STV): T(20) is even-positioned; second letter should be U(21).
- Option C (RTV): Starts at R(18) — incorrect starting position.

Answer: (D) [↑ Go Back to Q 9](#)

Q10.

Solution

Concept — Every alternate (even-positioned) letter (+2 positions each step):

The series B, D, F, H, ___ lists every second letter of the alphabet.

Step 1: B(2), D(4), F(6), H(8) — each advances by 2 positions.

Step 2: $8 + 2 = 10$, which is J.

Why other options are wrong:

- Option A (I): I is the 9th letter; $8 + 1 = 9$ — only 1 position ahead.
- Option B (K): K is the 11th letter; $8 + 3 = 11$ — 3 positions ahead, not 2.
- Option D (L): L is the 12th letter; $8 + 4 = 12$ — 4 positions ahead.

Answer: (C) [↑ Go Back to Q 10](#)

Q11.

Solution

Concept — Specialist and field of study:

A Geologist is a scientist who studies Rocks. By the same logic, an Ornithologist is a scientist who studies **Birds** (from Latin *ornis* = bird).

Why other options are wrong:

- Option A (Minerals): Minerals are studied by a Mineralogist.
- Option C (Mountains): Mountains are studied by a Geographer or Geologist (orogeny), not specifically an Ornithologist.
- Option D (Trees): Trees are studied by a Dendrologist or Botanist.

Answer: (B) [↑ Go Back to Q 11](#)

Q12.



Solution**Concept — Container and its primary liquid contents:**

A Cup typically contains Tea. By the same analogy, a Bottle typically contains **Water** (the most universally stored liquid in a bottle).

Why other options are wrong:

- Option B (Milk): Milk is commonly stored in a carton or jug, not primarily a bottle.
- Option C (Glass): Glass is the material a cup is made from, not contents.
- Option D (Juice): Juice is stored in bottles, but Water is the closest primary analogue to Tea for a bottle in this context.

Answer: (A) [↑ Go Back to Q 12](#)

Q13.

Solution**Concept — Professional and their primary action:**

A Teacher's primary professional activity is *Teaching* (Teaches). By the same analogy, a Doctor's primary professional activity is **Treats** (treating patients).

Why other options are wrong:

- Option A (Diagnoses): Diagnosis is one step in the process, not the overall primary role.
- Option B (Operates): Only surgeons operate; not all doctors do.
- Option C (Prescribes): Prescribing is also a partial activity; the broadest, overarching term is *Treats*.

Answer: (D) [↑ Go Back to Q 13](#)

Q14.

Solution**Concept — Antonym pairs:**

Hot and Cold are antonyms (opposites). By the same analogy, Day and **Night** are antonyms.

Why other options are wrong:

- Option A (Dark): Dark is a property associated with night, not the direct antonym of Day.
- Option B (Bright): Bright is a property of Day itself, not its opposite.
- Option D (Cool): Cool relates to temperature, not the direct opposite of Day.

Answer: (C) [↑ Go Back to Q 14](#)

Q15.



Solution**Concept — Perfect square and its square root:**36 : 6 because $\sqrt{36} = 6$. By the same rule, 49 : ___ requires $\sqrt{49} = 7$.**Why other options are wrong:**

- Option A (6): $6^2 = 36 \neq 49$.
- Option C (8): $8^2 = 64 \neq 49$.
- Option D (9): $9^2 = 81 \neq 49$.

Answer: (B) [↑ Go Back to Q 15](#)

Q16.

Solution**Concept — $n \times (n + 1)$ rule:**5 : 30 because $5 \times (5 + 1) = 5 \times 6 = 30$. Applying the same rule: $6 \times (6 + 1) = 6 \times 7 = 42$.**Why other options are wrong:**

- Option B (36): $6 \times 6 = 36$ — uses n^2 , not $n(n + 1)$.
- Option C (40): $6 \times 6\frac{2}{3} = 40$ — no consistent rule.
- Option D (30): $6 \times 5 = 30$ — uses $n \times (n - 1)$, not the correct pattern.

Answer: (A) [↑ Go Back to Q 16](#)

Q17.

Solution**Concept — $n \times (n + 1)$ rule:**2 : 6 because $2 \times (2 + 1) = 2 \times 3 = 6$. Applying the same rule: $4 \times (4 + 1) = 4 \times 5 = 20$.**Why other options are wrong:**

- Option A (12): $4 \times 3 = 12$ — uses $n \times (n - 1)$.
- Option B (16): $4^2 = 16$ — uses n^2 .
- Option C (14): $4 \times 3.5 = 14$ — no consistent rule.

Answer: (D) [↑ Go Back to Q 17](#)

Q18.

Solution**Concept — Shift each letter forward by 4 positions in the alphabet:**Code the word **FACE** by replacing each letter with the one 4 places ahead.**Step 1:**

$$F(6) + 4 = 10 = J$$

$$A(1) + 4 = 5 = E$$



$$C(3) + 4 = 7 = G$$

$$E(5) + 4 = 9 = I$$

Step 2: Code = JEGL.

Why other options are wrong:

- Option A (IEFH): $F \rightarrow I$ is $+3$; incorrect shift.
- Option B (JDGI): $A \rightarrow D$ is $+3$; A should shift to E.
- Option D (JEFH): $C \rightarrow F$ is $+3$ and $E \rightarrow H$ is $+3$; incorrect shift for these letters.

Answer: (C) [↑ Go Back to Q 18](#)

Q19.

Solution

Concept — Each letter is replaced by twice its position value; then the values are summed:

Find the code value of ACE where each letter's value = $2 \times \text{position}$.

Step 1:

$$A(1) \times 2 = 2$$

$$C(3) \times 2 = 6$$

$$E(5) \times 2 = 10$$

Step 2: Total = $2 + 6 + 10 = 18$.

Why other options are wrong:

- Option A (9): $1 + 3 + 5 = 9$ — uses positions without doubling.
- Option C (10): Only the value of E doubled; ignores other letters.
- Option D (16): $2 + 4 + 10 = 16$ — uses wrong position for C ($2 \times 2 = 4$ instead of $3 \times 2 = 6$).

Answer: (B) [↑ Go Back to Q 19](#)

Q20.

Solution

Concept — The first letter of the word is moved to the end:

Code the word LIVE by moving the first letter (L) to the end.

Step 1: LIVE $\rightarrow$ remove L from front, append to end.

Step 2: Remaining letters: I, V, E; append L $\rightarrow$ IVEL.

Why other options are wrong:

- Option B (LIVE): Unchanged — no transformation applied.
- Option C (IVLE): L is moved but remaining order is rearranged incorrectly (V and E are swapped).



- Option D (VELI): Letters are not in the correct order after removing L.

Answer: (A) [↑ Go Back to Q 20](#)

Q21.

Solution

Concept — Code is the total number of letters in the word:

Count the letters in **MATHEMATICS**.

Step 1: M-A-T-H-E-M-A-T-I-C-S. Count each letter: 1(M), 2(A), 3(T), 4(H), 5(E), 6(M), 7(A), 8(T), 9(I), 10(C), 11(S).

Step 2: Total = 11 letters.

Why other options are wrong:

- Option A (9): Under-counts; misses 2 letters.
- Option B (10): Under-counts by 1; MATHEMATICS has 11 letters, not 10.
- Option C (12): Over-counts by 1.

Answer: (D) [↑ Go Back to Q 21](#)

Q22.

Solution

Concept — Each letter shifted forward by its position index in the word:

Code **DOG**: 1st letter +1, 2nd letter +2, 3rd letter +3.

Step 1:

$$D(4) + 1 = 5 = E$$

$$O(15) + 2 = 17 = Q$$

$$G(7) + 3 = 10 = J$$

Step 2: Code = **EQJ**.

Why other options are wrong:

- Option A (EQH): $G + 1 = H$ — uses +1 instead of +3 for the 3rd letter.
- Option B (FQJ): $D + 2 = F$ — uses +2 instead of +1 for the 1st letter.
- Option D (FRJ): $D + 2 = F$ and $O + 3 = R$ — wrong shift values for both 1st and 2nd letters.

Answer: (C) [↑ Go Back to Q 22](#)

Q23.

Solution

Concept — Metals vs. non-metals:

Iron, Copper, and Aluminium are all *metals*. **Wood** is a non-metal (organic mate-



rial) and does not belong to this group.

Why other options are wrong:

- Option A (Iron): Iron is a metal — it belongs.
- Option C (Copper): Copper is a metal — it belongs.
- Option D (Aluminium): Aluminium is a metal — it belongs.

Answer: (B) [↑ Go Back to Q 23](#)

Q24.

Solution

Concept — Perfect squares:

$16 = 4^2$, $25 = 5^2$, $36 = 6^2$ are all perfect squares. 48 is not a perfect square ($6^2 = 36$, $7^2 = 49$), so it does not belong.

Why other options are wrong:

- Option B (16): $4^2 = 16$ — perfect square, belongs.
- Option C (25): $5^2 = 25$ — perfect square, belongs.
- Option D (36): $6^2 = 36$ — perfect square, belongs.

Answer: (A) [↑ Go Back to Q 24](#)

Q25.

Solution

Concept — Inner (terrestrial) planets vs. outer (gas giant) planets:

Mercury, Venus, and Earth are the *inner terrestrial planets* of the Solar System. **Jupiter** is an outer gas giant and does not belong with the terrestrial planets.

Why other options are wrong:

- Option A (Mercury): 1st planet from the Sun — inner terrestrial planet.
- Option B (Venus): 2nd planet from the Sun — inner terrestrial planet.
- Option C (Earth): 3rd planet from the Sun — inner terrestrial planet.

Answer: (D) [↑ Go Back to Q 25](#)

Q26.

Solution

Concept — Poetry forms vs. prose:

A Sonnet, Haiku, and Elegy are all forms of *poetry*. A **Novel** is a work of long-form *prose* fiction and does not belong in this group.

Why other options are wrong:

- Option A (Sonnet): A 14-line poem — poetry form.
- Option B (Haiku): A 3-line Japanese poem — poetry form.



- Option D (Elegy): A mournful poem — poetry form.

Answer: (C) [↑ Go Back to Q 26](#)

Q27.

Solution

Concept — Syllogism with partial (“Some”) and universal (“All”) statements:
Statements: (i) Some students are intelligent. (ii) All intelligent people succeed.

Step 1 — Conclusion I (Some students succeed): From (i), some students are intelligent. From (ii), all intelligent people succeed. Therefore, those students who are intelligent also succeed. Hence *Some students succeed* — **TRUE**.

Step 2 — Conclusion II (All students succeed): Statement (i) says only “Some” students are intelligent, not all. We cannot generalise to all students. — **FALSE**.

Result: Only Conclusion I follows.

Why other options are wrong:

- Option A (Both): Conclusion II cannot be drawn from a “Some” premise.
- Option C (Only II): Conclusion II is false; Conclusion I is true.
- Option D (Neither): Conclusion I is validly derived.

Answer: (B) [↑ Go Back to Q 27](#)

Q28.

Solution

Concept — Universal affirmative combined with universal negative:

Statements: (i) All trains have wheels. (ii) No wheels are square.

Step 1 — Conclusion I (No trains are square): All trains have wheels, and no wheels are square. By transitive reasoning, no trains can be square. — **TRUE**.

Step 2 — Conclusion II (Some trains are square): This directly contradicts Conclusion I. If no trains are square, it is impossible that some trains are square. — **FALSE**.

Result: Only Conclusion I follows.

Why other options are wrong:

- Option B (Only II): Conclusion II contradicts valid Conclusion I.
- Option C (Both): I and II are contradictory; both cannot follow simultaneously.
- Option D (Neither): Conclusion I is logically valid.

Answer: (A) [↑ Go Back to Q 28](#)

Q29.



Solution

Concept — Syllogism with partial (“Some”) and universal (“All”) statements:
 Statements: (i) Some doctors are rich. (ii) All rich people have cars.

Step 1 — Conclusion I (Some doctors have cars): Some doctors are rich (i), and all rich people have cars (ii). Therefore, those doctors who are rich also have cars.
Some doctors have cars — **TRUE**.

Step 2 — Conclusion II (All doctors have cars): Only “Some” doctors are rich, so we cannot extend the conclusion to all doctors. — **FALSE**.

Result: Only Conclusion I follows.

Why other options are wrong:

- Option A (Both): Conclusion II is not supported by the premises.
- Option B (Neither): Conclusion I is validly derived.
- Option C (Only II): Conclusion II requires all doctors to be rich, which is not given.

Answer: (D) [↑ Go Back to Q 29](#)

Q30.

Solution

Concept — Negative universal combined with partial statement:

Statements: (i) No lakes are oceans. (ii) Some rivers are oceans.

Step 1 — Conclusion I (Some rivers are not lakes): Some rivers are oceans (ii). Since no lakes are oceans (i), those rivers that are oceans cannot be lakes. Therefore, *Some rivers are not lakes* — **TRUE**.

Step 2 — Conclusion II (No rivers are lakes): The premises only establish that *some* rivers (those that are oceans) are not lakes. Other rivers may or may not be lakes — we cannot conclude that *no* rivers are lakes. — **FALSE**.

Result: Only Conclusion I follows.

Why other options are wrong:

- Option A (Only II): Conclusion II goes beyond what the premises support.
- Option B (Both): Conclusion II is too strong and unwarranted.
- Option D (Neither): Conclusion I is a valid deduction.

Answer: (C) [↑ Go Back to Q 30](#)

Q31.



Solution

Concept — Tracing family relationships step by step:

“He is the son of my father’s only daughter.”

Step 1: Man’s father’s only daughter = the man’s *sister* (since she is the only daughter of his father).

Step 2: The boy is the *son of the man’s sister*.

Step 3: A sister’s son is a **Nephew**.

Why other options are wrong:

- Option A (Son): The man’s own son would be referred to differently.
- Option C (Cousin): A cousin is the child of an aunt or uncle, not a sibling.
- Option D (Brother): A brother is a male sibling, not the son of a sibling.

Answer: (B) [↑ Go Back to Q 31](#)

Q32.

Solution

Concept — Tracing family relationships step by step:

P is Q’s brother. Q is R’s sister. R is S’s father.

Step 1: Q is R’s sister $\Rightarrow$ R is Q’s brother. P is also Q’s brother $\Rightarrow$ P and R are siblings (P is R’s brother).

Step 2: R is S’s father $\Rightarrow$ S is R’s child.

Step 3: P is R’s brother $\Rightarrow$ P is S’s **Uncle**.

Why other options are wrong:

- Option B (Cousin): P is a direct sibling of R, making P an uncle, not a cousin.
- Option C (Father): R is S’s father; P is R’s brother, not R himself.
- Option D (Brother): P is S’s uncle, not S’s sibling.

Answer: (A) [↑ Go Back to Q 32](#)

Q33.

Solution

Concept — Tracing family relationships step by step:

“Your mother’s husband’s daughter is my mother.”

Step 1: Man’s mother’s husband = the man’s *father*.

Step 2: Man’s father’s daughter = the man’s *sister*.

Step 3: The woman says this sister is *her mother*. So the woman’s mother = the man’s sister.



Step 4: The woman is the daughter of the man's sister $\Rightarrow$ the woman is the man's Niece.

Why other options are wrong:

- Option A (Sister): The woman is a generation below the man's sister, so she is his niece, not sister.
- Option B (Daughter): The man's own daughter would have his wife as mother, not his sister.
- Option C (Mother): The man's mother is not the woman in this scenario.

Answer: (D) [↑ Go Back to Q 33](#)

Q34.

Solution

Concept — Pythagoras' theorem for perpendicular displacements:

The man walks 8 km North and then 15 km East, forming a right angle.

Step 1: The two legs of the right triangle are 8 km and 15 km.

Step 2: Straight-line distance = $\sqrt{8^2 + 15^2} = \sqrt{64 + 225} = \sqrt{289} = 17$ km.

Why other options are wrong:

- Option A (8 km): This is only the northward leg; ignores the eastward walk.
- Option B (15 km): This is only the eastward leg; ignores the northward walk.
- Option D (23 km): $8 + 15 = 23$ — simple addition, not the straight-line distance.

Answer: (C) [↑ Go Back to Q 34](#)

Q35.

Solution

Concept — Tracking net displacement on a coordinate grid:

Starting from A at (0, 0), trace each step.

Step 1:

+2 E $\rightarrow$ (2, 0); +2 N $\rightarrow$ (2, 2); +2 W $\rightarrow$ (0, 2); +4 S $\rightarrow$ (0, -2); +2 E $\rightarrow$ (2, -2); +2 N $\rightarrow$ (2, 0).

Step 2: Final position is (2, 0), which is 2 km East of A.

Why other options are wrong:

- Option A (At A): Net east displacement is +2 km, not zero.
- Option C (4 km South): Net north-south displacement: $+2 - 4 + 2 = 0$; not south.
- Option D (2 km North): Net N-S displacement is $2 - 4 + 2 = 0$.

Answer: (B) [↑ Go Back to Q 35](#)

Q36.



Solution

Concept — Tracking direction changes (Left = anticlockwise 90°, Right = clockwise 90°):

Starting direction: **East**.

Step 1:

East $\xrightarrow{\text{Turn Left}}$ North $\xrightarrow{\text{Turn Left}}$ West $\xrightarrow{\text{Turn Right}}$ North $\xrightarrow{\text{Turn Right}}$ **East**.

Step 2: Final direction is **East**.

Why other options are wrong:

- Option B (North): Correct after the 3rd turn but not the final direction.
- Option C (West): Correct after the 2nd turn but not the final direction.
- Option D (South): Never reached during these turns.

Answer: (A) [↑ Go Back to Q 36](#)

Q37.

Solution

Concept — Standard die: opposite faces always sum to 7:

In a standard die, the six pairs of opposite faces are: (1,6), (2,5), (3,4).

Step 1: Front face = 5. The face opposite to the front is the back face.

Step 2: $5 + \text{back} = 7 \Rightarrow \text{back} = 7 - 5 = 2$.

Why other options are wrong:

- Option A (4): 4 is opposite to 3 (top face), not opposite to 5.
- Option B (6): 6 is opposite to 1, not to 5.
- Option C (1): 1 is opposite to 6, not to 5.

Answer: (D) [↑ Go Back to Q 37](#)

Q38.

Solution

Concept — Standard die: opposite faces always sum to 7:

Top face = 2; Front face = 3.

Step 1: Bottom (opposite to top): $7 - 2 = 5$.

Step 2: Back (opposite to front): $7 - 3 = 4$.

Step 3: Sum of bottom and back faces = $5 + 4 = 9$.

Why other options are wrong:

- Option A (7): That is the sum of any single opposite-face pair, not two pairs combined.
- Option B (14): $7 + 7 = 14$ would be the sum of two independent opposite-pair



sums, not the actual face values $5 + 4$.

- Option D (11): $5 + 6 = 11$ or $4 + 7 = 11$ — uses incorrect face values.

Answer: (C) [↑ Go Back to Q 38](#)

Q39.

Solution

Concept — Each figure is a 180° rotation of its paired figure:

Rule: $A : B :: C : ?$ where B is A rotated 180° , and D must be C rotated 180° .

Step 1: Figure A shows an arrow pointing upper-right ($\nearrow$). Figure B (its 180° rotation) points lower-left ($\swarrow$). The rule is confirmed.

Step 2: Figure C shows an arrow pointing upper-left ($\nwarrow$). Rotating 180° flips both horizontal and vertical components: upper-left $\rightarrow$ lower-right ($\searrow$). Figure D = $\searrow$ (lower-right).

Why other options are wrong:

- Option A ($\nearrow$ upper-right): 90° rotation, not 180° .
- Option C ($\nwarrow$ upper-left): Same as Figure C; no rotation applied.
- Option D ($\swarrow$ lower-left): That would be the 180° rotation of Figure A, not Figure C.

Answer: (B) [↑ Go Back to Q 39](#)

Q40.

Solution

Concept — Rule: the outer shape must contain the same shape inside it (smaller):

Examine each figure against the rule.

Step 1:

- Figure A: outer shape = *circle*; inner shape = *square*. Different shapes — **BREAKS the rule.**
- Figure B: outer shape = triangle; inner shape = triangle. Same — rule holds.
- Figure C: outer shape = square; inner shape = square. Same — rule holds.
- Figure D: outer shape = circle; inner shape = circle. Same — rule holds.

Step 2: Figure A is the only figure that breaks the rule.

Why other options are wrong:

- Option B (Figure B): Triangle inside triangle — follows the rule.
- Option C (Figure C): Square inside square — follows the rule.
- Option D (Figure D): Circle inside circle — follows the rule.

Answer: (A) [↑ Go Back to Q 40](#)



Answer Key

Q No.	Ans	Q No.	Ans	Q No.	Ans	Q No.	Ans	Q No.	Ans
1	C	2	D	3	A	4	B	5	D
6	C	7	B	8	A	9	D	10	C
11	B	12	A	13	D	14	C	15	B
16	A	17	D	18	C	19	B	20	A
21	D	22	C	23	B	24	A	25	D
26	C	27	B	28	A	29	D	30	C
31	B	32	A	33	D	34	C	35	B
36	A	37	D	38	C	39	B	40	A

