

MAH B.P.Ed CET — Mental Ability

Sample Paper 7 of 8

Time Allowed: **18 Minutes** Total Marks: **15** Questions: **15** Mode: **Online CBT**

Marking Scheme: **+1** for each correct answer **No** negative marking

Instructions

- This paper contains **15 multiple-choice questions** (MCQ), each with four options (A–D).
- Each correct answer carries **+1 mark**. There is **no negative marking**.
- Only **one option** is correct per question.
- Maximum marks: **15**. Total time: **18 minutes**.
- Attempt all questions. Do not spend too long on any single item.

SECTION: Mental Ability

Q1. What is the next term in the following series?

1, 2, 4, 7, 11, _____

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

Q2. What is the next letter in the following series?

C, F, I, L, O, _____

- (A) P
- (B) R
- (C) Q
- (D) S

Q3. What is the next term in the following series?

1, 2, 6, 24, 120, _____



- (A) 240
- (B) 360
- (C) 600
- (D) 720

Q4. Choose the word that best completes the analogy.

Lion : Pride :: Fish : ?

- (A) School
- (B) Pack
- (C) Flock
- (D) Herd

Q5. Choose the number that best completes the analogy.

4 : 64 :: 2 : ?

- (A) 4
- (B) 6
- (C) 8
- (D) 16

Q6. In a certain code language, **SONG** is written as **RNMF**.

Following the same coding rule, how is **PLAY** coded?

- (A) OKAX
- (B) OKZX
- (C) PLAX
- (D) PLZY

Q7. In a certain code, **FACE** is written as **6-1-3-5**, where each letter is replaced by its position in the English alphabet (A = 1, B = 2, C = 3, ...). Using the same rule, what is the code for **GAME**?

- (A) 7-1-12-5
- (B) 7-2-13-5
- (C) 6-1-13-5



(D) 7-1-13-5

Q8. Find the **odd one out** from the following group of musical instruments.

- (A) Drums
- (B) Violin
- (C) Guitar
- (D) Piano

Q9. Find the **odd one out** from the following numbers.

1, 4, 9, 15, 16

- (A) 9
- (B) 16
- (C) 15
- (D) 4

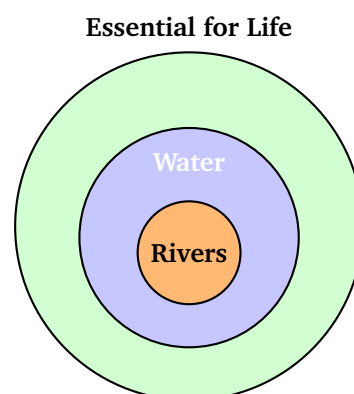
Q10. Statements:

- I. All rivers have water.
- II. All water is essential for life.

Conclusions:

- I. All rivers are essential for life.
- II. Some things essential for life are rivers.

Study the Venn diagram below and decide which conclusion(s) follow.



- (A) Only Conclusion I follows
- (B) Only Conclusion II follows



- (C) Both Conclusions I and II follow
(D) Neither Conclusion follows

Q11. Statements:

- I. All cats meow.
II. Some pets meow.

Conclusions:

- I. Some pets are cats.
II. Some things that meow are pets.

Which of the above conclusions follow(s)?

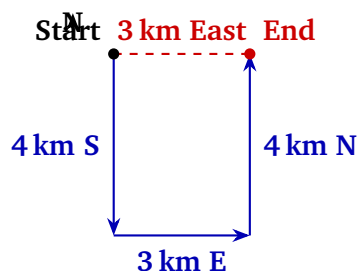
- (A) Only Conclusion I follows
(B) Only Conclusion II follows
(C) Both Conclusions I and II follow
(D) Neither Conclusion follows

Q12. Pointing to a man in a photograph, a woman says, “*He is the husband of my mother’s only daughter.*”

What is the man’s relation to the woman?

- (A) Husband
(B) Brother
(C) Son
(D) Father

Q13. Kumar starts from a fixed point. He walks **4 km South**, then turns and walks **3 km East**, then turns again and walks **4 km North**. How far is he from his starting point, and in which direction?



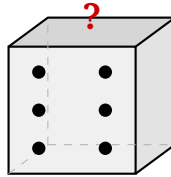
- (A) 5 km



- (B) 4 km East
- (C) 3 km East
- (D) 7 km

Q14. On a standard die, the numbers on any two **opposite** faces always **sum to 7**. What number is on the face **opposite to 6**?

Refer to the die below.



Front face shows 6 — opposite face shows ?

- (A) 3
- (B) 4
- (C) 5
- (D) 1

Q15. In the figure matrix below, shapes **increase in size** from left to right within each row. Select the figure that should replace the question mark (?) in the bottom-right cell.

	Col 1	Col 2
Row 1	 small ○	 medium ○
Row 2	 small □	

- (A) Large square
- (B) Medium square
- (C) Small square
- (D) Medium circle



Detailed Solutions

MAH B.P.Ed CET — Mental Ability — Sample Paper 7

Q1.

Solution

Series: 1, 2, 4, 7, 11, ____

Compute the differences between consecutive terms:

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

The differences are +1, +2, +3, +4, ... (each difference increases by 1).

Next difference = +5, so the next term = $11 + 5 = 16$.

Answer: (C)

Q2.

Solution

Series: C, F, I, L, O, ____

Each letter is +3 positions ahead of the previous one in the alphabet:

$$C(3) \xrightarrow{+3} F(6) \xrightarrow{+3} I(9) \xrightarrow{+3} L(12) \xrightarrow{+3} O(15) \xrightarrow{+3} R(18)$$

The next letter is **R**.

Answer: (B)

Q3.

Solution

Series: 1, 2, 6, 24, 120, ____

Each term is a factorial of consecutive natural numbers:

$$1 = 1!, \quad 2 = 2!, \quad 6 = 3!, \quad 24 = 4!, \quad 120 = 5!, \quad \mathbf{720 = 6!}$$

The next term is $6! = 720$.

Answer: (D)



Solution

Analogy type: Collective nouns (names for groups of animals).

- Q4. • A group of **lions** is called a **Pride**.
 • A group of **fish** is called a **School**.

Other options eliminated: *Pack* (wolves/dogs), *Flock* (birds/sheep), *Herd* (cattle/elephants).

The answer is **School**.

Answer: (A)

Q5.

Solution

Analogy: $4 : 64 :: 2 : ?$

The relationship is $x : x^3$ (cube of the number):

$$4^3 = 64 \Rightarrow 2^3 = 8$$

The answer is 8.

Answer: (C)

Q6.

Solution

Coding rule: Each letter is shifted **one position backward** in the alphabet (i.e. each letter's code = letter - 1), with a circular wrap: $A \rightarrow Z$.

Verification with SONG $\rightarrow$ RNMF:

$$S(19) - 1 = R(18), \quad O(15) - 1 = N(14), \quad N(14) - 1 = M(13), \quad G(7) - 1 = F(6) \checkmark$$

Apply to PLAY:

$$P(16) - 1 = O(15), \quad L(12) - 1 = K(11), \quad A(1) - 1 = Z(26) \text{ (circular)}, \quad Y(25) - 1 = X(24)$$

Code for PLAY = **OKZX**.

Answer: (B)



Solution

Coding rule: Each letter is replaced by its **position number** in the English alphabet (A=1, B=2, C=3, ..., Z=26).

Verification with FACE → 6-1-3-5:

$$F = 6, \quad A = 1, \quad C = 3, \quad E = 5 \Rightarrow \mathbf{6-1-3-5} \checkmark$$

Apply to GAME:

$$G = 7, \quad A = 1, \quad M = 13, \quad E = 5 \Rightarrow \mathbf{7-1-13-5}$$

Why the distractors are wrong:

- Q7.
- Option A (7-1-12-5): 12 = L, not M.
 - Option B (7-2-13-5): 2 = B, not A.
 - Option C (6-1-13-5): 6 = F, not G.

The code for GAME is **7-1-13-5**.

Answer: (D)

Solution

Classification — Musical Instruments:

- Q8.
- **Violin** — stringed instrument (bow drawn across strings).
 - **Guitar** — stringed instrument (strings plucked/strummed).
 - **Piano** — stringed instrument (strings struck by internal hammers).
 - **Drums** — *percussion* instrument (struck membrane/surface).

Violin, Guitar, and Piano all belong to the *stringed* family. **Drums** is the odd one out — it is a percussion instrument.

Answer: (A)

Q9.

Solution

Classification — Perfect Squares:

Check each number:

$$1 = 1^2, \quad 4 = 2^2, \quad 9 = 3^2, \quad 16 = 4^2$$

$$15 \neq n^2 \text{ for any integer } n \quad (\sqrt{15} \approx 3.87, \text{ not an integer})$$



15 is the only number in the list that is *not* a perfect square. It is the odd one out.

Answer: (C)

Solution

Statements:

- Q10. I. All rivers have water. ($\text{Rivers} \subset \text{Water}$)
 II. All water is essential for life. ($\text{Water} \subset \text{Essential for Life}$)

By transitivity: $\text{Rivers} \subset \text{Water} \subset \text{Essential for Life}$.

Conclusion I: "All rivers are essential for life."

Since $\text{Rivers} \subset \text{Water}$ and $\text{Water} \subset \text{Essential for Life}$, we get $\text{Rivers} \subset \text{Essential for Life}$. **Follows.** ✓

Conclusion II: "Some things essential for life are rivers."

From Conclusion I, all rivers are essential for life. Converting the universal affirmative (All rivers are essential for life) partially: some things essential for life *are* rivers. **Follows.** ✓

Both Conclusions I and II follow.

Answer: (C)

Solution

Statements:

- Q11. I. All cats meow. ($\text{Cats} \subset \text{Things-that-meow}$)
 II. Some pets meow. ($\text{Some Pets} \cap \text{Things-that-meow} \neq \emptyset$)

Conclusion I: "Some pets are cats."

Statement II tells us only that some pets meow — not *why* they meow. Those meowing pets may or may not be cats (e.g. some birds also meow/vocalize). We *cannot* infer that any pet is necessarily a cat from these two statements alone. **Does not follow.** ×

Conclusion II: "Some things that meow are pets."

Statement II directly asserts that some pets meow. Those pets are themselves things that meow. Therefore, some things that meow are pets. **Follows.** ✓

Only Conclusion II follows.

Answer: (B)



Solution

Statement: "He is the husband of my mother's only daughter."

- Q12.
- **Step 1:** "My mother's only daughter" = the woman **herself** (she is the sole daughter of her mother).
 - **Step 2:** "He is the husband of *herself*" $\Rightarrow$ the man is the woman's own **husband**.

The man's relation to the woman is **Husband**.

Answer: (A)

Solution

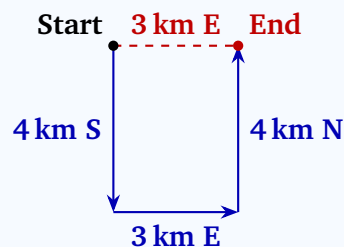
Kumar's route:

- Q13.
- (a) Walks 4 km **South** (net South displacement: +4 km)
 - (b) Walks 3 km **East** (net East displacement: +3 km)
 - (c) Walks 4 km **North** (net South displacement: -4 km)

Net vertical displacement: 4 km South + 4 km North = 0 km (they cancel).

Net horizontal displacement: 3 km **East**.

Final distance from starting point = 3 km; direction = **East**.



Kumar is **3 km East** of his starting point.

Answer: (C)

Solution

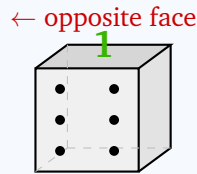
On a **standard die**, opposite faces sum to 7:

$$1 + 6 = 7, \quad 2 + 5 = 7, \quad 3 + 4 = 7$$

The face opposite to **6**:

$$7 - 6 = 1$$





Q14. Front: 6 Opposite: 1

The number on the face opposite to 6 is 1.

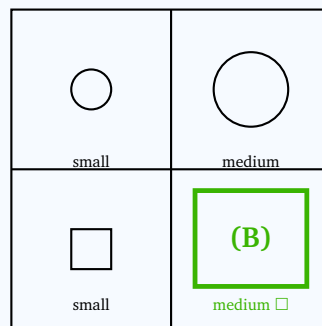
Answer: (D)

Solution

Pattern analysis:

Cell	Shape	Size
Top-left	Circle	Small
Top-right	Circle	Medium (larger)
Bottom-left	Square	Small
Bottom-right	Square	Medium (larger) ← answer

Rule: Within each row the *same shape* grows from small to medium (left to right).
Row 1: Small circle → Medium circle. Row 2 must follow: Small square → **Medium square**.



The correct answer is (B) Medium square.

Answer: (B)

Answer Key

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



Option	Frequency
A (correct)	3
B (correct)	4
C (correct)	4
D (correct)	4
Total	15

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