

MAH B.P.Ed CET — Mental Ability

Sample Paper – 2

Duration: 18 Minutes

Maximum Marks: 15

Instructions

- This paper contains **15 questions** of **1 mark** each.
- Each correct answer carries **+1 mark**. There is **no negative marking**.
- All questions are **single-correct** type with four options (A–D).
- The exam is conducted in **Online CBT (Computer Based Test)** mode.
- Topics covered: **Series, Analogies, Coding-Decoding, Classification (Odd One Out), Syllogism, Blood Relations, Direction Sense, Dice & Net Folding, Pattern Matrix.**
- Attempt all questions within **18 minutes**.

Mental Ability — 15 Questions

Q1. What is the next term in the series?

1, 1, 2, 3, 5, 8, _____

(Hint: Each term equals the sum of the two preceding terms.)

- (A) 13
- (B) 11
- (C) 10
- (D) 12

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

A, C, E, G, _____

(Hint: Each letter is obtained by skipping one letter from the previous term.)

- (A) H
- (B) J



(C) K

(D) I

Q3. What is the next term in the series?

1, 8, 27, 64, 125, _____

(Hint: Observe the relation between term position and value.)

(A) 196

(B) 180

(C) 216

(D) 225

Q4. Choose the pair that best completes the analogy.

Doctor : Hospital :: Pilot : _____

(A) Aeroplane

(B) Cockpit

(C) Runway

(D) Airport

Q5. Choose the number that best completes the analogy.

4 : 16 :: 6 : _____

(A) 36

(B) 24

(C) 32

(D) 48

Q6. In a certain code language, **DREAM** is written as **MAERD**. Using the same rule, how is **LIGHT** coded?



- (A) LGITH
- (B) TIGHL
- (C) GITHL
- (D) THGIL

Q7. If **MANGO** is coded as **13-1-14-7-15** (using $A = 1, B = 2, \dots, Z = 26$), what is the code for **ROSE**?

- (A) 17-14-18-4
- (B) 18-14-20-5
- (C) 18-15-19-5
- (D) 19-16-20-6

Q8. Find the **odd one out**.

- (A) Mars
- (B) Moon
- (C) Jupiter
- (D) Saturn

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

- (A) 4
- (B) 8
- (C) 12
- (D) 15

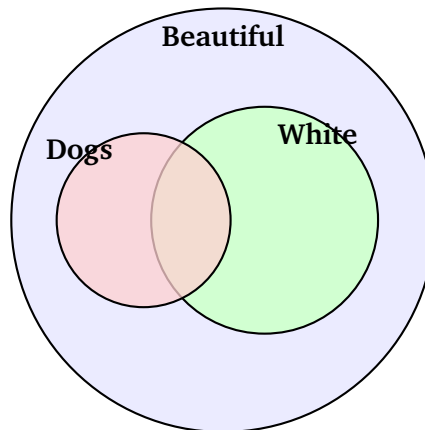
Q10. Statements:

1. Some dogs are white.
2. All white things are beautiful.



Conclusions:

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



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

Q11. Statements:

- 1. Some books are pens.
- 2. Some pens are pencils.

Conclusions:

- I. Some books are pencils.
- II. All pencils are books.

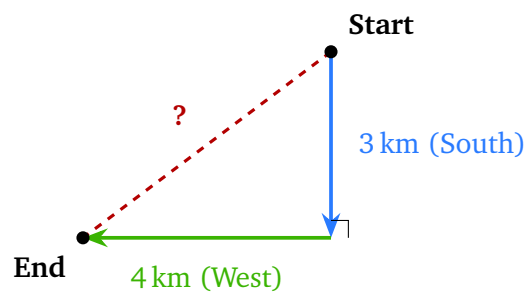
- (A) Only Conclusion I follows
- (B) Only Conclusion II follows
- (C) Both Conclusions I and II follow
- (D) Neither Conclusion I nor II follows

Q12. M is N's sister. N is O's father. What is M's relation to O?



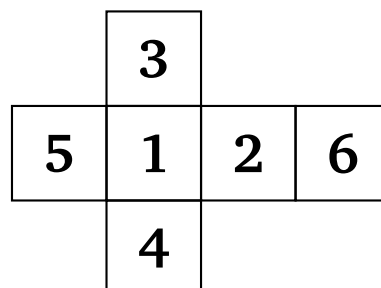
- (A) Sister
- (B) Aunt
- (C) Mother
- (D) Grandmother

Q13. Seema starts from a point, walks **3 km South**, then turns and walks **4 km West**. What is the straight-line distance from her **starting point** to her **current position**?



- (A) 5 km
- (B) 6 km
- (C) 7 km
- (D) 8 km

Q14. The figure below shows the net of a **standard die**. When folded into a cube, which face is **opposite** to face **4**?

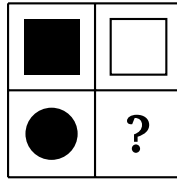


- (A) 5
- (B) 6
- (C) 3



(D) 1

Q15. Study the pattern in the 2×2 figure matrix. The rule is: *filled shape* $\rightarrow$ *empty shape*. Identify the missing figure (?).



- (A) ● (Filled circle)
- (B) ■ (Filled square)
- (C) □ (Empty square)
- (D) ○ (Empty circle)



Detailed Solutions

Q1.

Solution

Series: 1, 1, 2, 3, 5, 8, _____

This is the celebrated **Fibonacci Series**, where every term is the sum of the two immediately preceding terms:

$$T_1 = 1, \quad T_2 = 1, \quad T_3 = 1+1 = 2, \quad T_4 = 1+2 = 3, \quad T_5 = 2+3 = 5, \quad T_6 = 3+5 = 8$$

$$T_7 = 5 + 8 = \mathbf{13}$$

The next term is 13.

Answer: (A) [Go Back to Q 1](#)

Q2.

Solution

Series: A, C, E, G, _____

The series lists every **odd-positioned letter** of the English alphabet, advancing by +2 each step:

$$A (1) \xrightarrow{+2} C (3) \xrightarrow{+2} E (5) \xrightarrow{+2} G (7) \xrightarrow{+2} I (9)$$

The next term is **I**.

Answer: (D) [Go Back to Q 2](#)

Q3.

Solution

Series: 1, 8, 27, 64, 125, _____

Each term is the **perfect cube** of its position number:

$$1^3 = 1, \quad 2^3 = 8, \quad 3^3 = 27, \quad 4^3 = 64, \quad 5^3 = 125, \quad 6^3 = \mathbf{216}$$

The next term is **216**.

Answer: (C) [Go Back to Q 3](#)



Q4.

Solution**Analogy:** Doctor : Hospital :: Pilot : _____The relationship is **Worker : Specific Work Position/Station**:

- A **Doctor** performs their primary work inside a **Hospital**.
- A **Pilot** operates from the **Cockpit** — the enclosed control cabin at the front of an aircraft from which the pilot flies the plane.

While a pilot is *associated with* an aeroplane or airport, the precise *workplace* (working position) is the **Cockpit**, mirroring how a hospital is the doctor's work-place.

The answer is **Cockpit**.**Answer: (B)** [Go Back to Q 4](#)

Q5.

Solution**Analogy:** 4 : 16 :: 6 : _____The rule is $x : x^2$ (a number is paired with its **square**):

$$4 : 4^2 = 4 : 16 \quad \implies \quad 6 : 6^2 = 6 : 36$$

The answer is **36**.**Answer: (A)** [Go Back to Q 5](#)

Q6.

Solution**Coding Rule:** The entire word is written in **reverse order**.**Verification:**

$$\text{DREAM} \rightarrow D-R-E-A-M \xrightarrow{\text{reverse}} M-A-E-R-D = \text{MAERD} \checkmark$$

Applying the same rule to LIGHT:

$$\text{LIGHT} \rightarrow L-I-G-H-T \xrightarrow{\text{reverse}} T-H-G-I-L = \text{THGIL}$$

The code for LIGHT is **THGIL**.

Answer: (D) [Go Back to Q 6](#)

Q7.

Solution

Coding Rule: Each letter is replaced by its **alphabetical position number** ($A = 1$, $B = 2$, ..., $Z = 26$).

Verification with MANGO:

$$M = 13, A = 1, N = 14, G = 7, O = 15 \Rightarrow 13-1-14-7-15 \checkmark$$

Encoding ROSE:

$$R = 18, O = 15, S = 19, E = 5 \Rightarrow 18-15-19-5$$

The code for ROSE is 18-15-19-5.

Answer: (C) [Go Back to Q 7](#)

Q8.

Solution

Group: Mars, Moon, Jupiter, Saturn

- **Mars** — 4th planet from the Sun ✓
- **Jupiter** — 5th planet from the Sun ✓
- **Saturn** — 6th planet from the Sun ✓
- **Moon** — Earth's *natural satellite*; **not** a planet ✗

Mars, Jupiter, and Saturn are all **planets of the Solar System**. The **Moon** is a natural satellite that orbits the Earth, placing it in a fundamentally different category.

The odd one out is Moon.

Answer: (B) [Go Back to Q 8](#)



Q9.

Solution**Group:** 4, 8, 12, 15Check which numbers are **divisible by 4** (multiples of 4):

$$4 \div 4 = 1 \checkmark, \quad 8 \div 4 = 2 \checkmark, \quad 12 \div 4 = 3 \checkmark, \quad 15 \div 4 = 3.75 \times$$

The numbers 4, 8, and 12 are all multiples of 4. The number **15** is **not divisible by 4**, making it the odd one out.

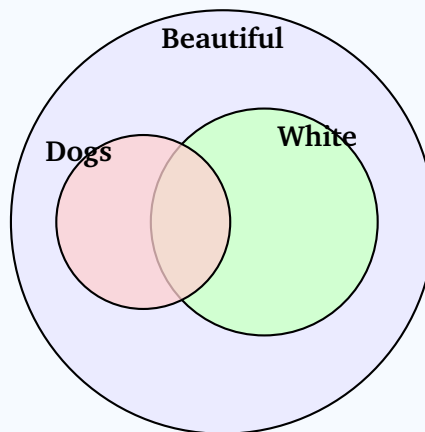
The odd one out is 15.

Answer: (D) [Go Back to Q 9](#)

Q10.

Solution**Statements:**

1. Some dogs are white. *(Particular Affirmative)*
2. All white things are beautiful. *(Universal Affirmative)*

Venn Diagram:**Conclusion I:** "Some dogs are beautiful."

Since *some* dogs are white, and *all* white things are beautiful, those dogs which are white must also be beautiful. **Conclusion I follows.** ✓

Conclusion II: "All dogs are beautiful."

Statement 1 says only *some* dogs are white. The remaining dogs need not be white, and hence need not be beautiful. We *cannot* extend the conclusion to *all* dogs. **Conclusion II does not follow.** ×

Only Conclusion I follows.



Answer: (A) [Go Back to Q 10](#)

Q11.

Solution

Statements:

1. Some books are pens. *(Particular Affirmative)*
2. Some pens are pencils. *(Particular Affirmative)*

Analysis:

In syllogistic reasoning, two *particular* (“Some...”) statements cannot produce a definite universal or particular conclusion linking the two extreme terms (**Books** and **Pencils**).

- **Conclusion I** — “Some books are pencils”: The chain Books–Pens–Pencils has two “some” links. The overlap between Books and Pens may not overlap with the pencil-portion of Pens at all. **Does not follow.** ×
- **Conclusion II** — “All pencils are books”: No universal statement is given about pencils or books, so this sweeping claim is unjustified. **Does not follow.** ×

Neither Conclusion I nor Conclusion II follows.

Answer: (D) [Go Back to Q 11](#)

Q12.

Solution

Given:

- M is N's *sister*.
- N is O's *father*.

Relation chain:

$$M \xrightarrow{\text{sister of}} N \xrightarrow{\text{father of}} O$$

Step-by-step reasoning:

1. N is O's *father*.
2. M is the *sister* of N (i.e., sister of O's father).
3. The sister of one's father is one's **Aunt**.



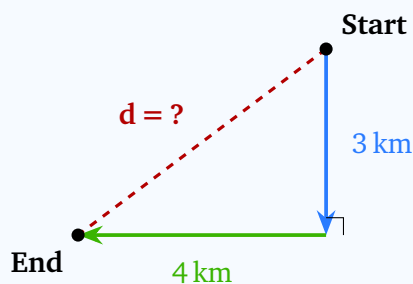
Therefore, M is O's **Aunt**.

Answer: (B) [Go Back to Q 12](#)

Q13.

Solution

Given: Seema walks 3 km South, then 4 km West.



The southward and westward displacements form the two legs of a **right-angled triangle**. By the **Pythagorean Theorem**:

$$d = \sqrt{(\text{South})^2 + (\text{West})^2} = \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5 \text{ km}$$

This is the classic **3-4-5 Pythagorean triple**.

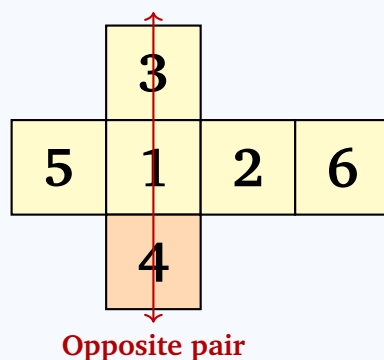
The straight-line distance from the starting point is **5 km**.

Answer: (A) [Go Back to Q 13](#)

Q14.

Solution

Net Analysis:



When the cross-shaped net is folded:



- Face 1 (centre of horizontal row) becomes the **front** face.
- Face 3 (above face 1) folds to become the **top** face.
- Face 4 (below face 1) folds to become the **bottom** face.
- Top and bottom are **opposite** $\Rightarrow$ face 3 is opposite face 4.
- Face 5 (left) is opposite face 2 (right).
- Face 6 (far right) folds to be opposite face 1 (front).

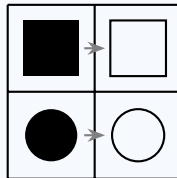
The face opposite to 4 is 3.

Answer: (C) [Go Back to Q 14](#)

Q15.

Solution

Pattern Rule: In each row (or column), a *filled shape* becomes an *empty (outline) shape*.



- **Top row:** ■ (filled square) $\rightarrow$ □ (empty square)
- **Bottom row:** ● (filled circle) $\rightarrow$ ○ (empty circle)

The same shape (circle) becomes its *empty/outline* version. The missing figure is an **empty circle** (○).

Answer: (D) [Go Back to Q 15](#)



Answer Key**MAH B.P.Ed CET — Mental Ability: Sample Paper 2**

Click on an answer letter to jump to its detailed solution.

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

Marking Scheme: Correct answer = +1 mark. No negative marking.

Total Questions: 15 **Maximum Marks:** 15 **Duration:** 18 minutes.

