MH CET LAW Logical & Analytical Reasoning

Sample Paper – 2

Duration: 24 Minutes **Maximum Marks: 30**

Instructions

- This paper contains **30** Multiple Choice Questions modelled on the Logical & Analytical Reasoning section of **MH CET LAW**.
- Each correct answer carries **+1 mark**. There is **no negative marking** for incorrect or unattempted answers.
- Only **one** option is correct per question. Choose carefully.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Q1. Find the missing number in the series: $2,\ 5,\ 10,\ 17,\ 26,\ ?$

(A) 35

(B) 37

(C) 38

(D) 40

Q2. Find the missing letter in the series: F, I, L, O, R, ?

(A) S

(B) T

(C) U

(D) V

Q3. Find the missing number in the series: $3,\ 9,\ 27,\ 81,\ 243,\ ?$

(A) 486

(B) 567

(C) 648

(D) 729

Q4. In a certain code language, **APPLE** is coded as **CRRNG**. Using the same coding rule, how will **GRAPE** be coded?

(A) ITCRG

(B) HSCQF

(C) JUDSF

(D) FQAPE

Q5. If **ROAD** is coded as **18-15-1-4** (using the position of each letter in the English alphabet), what is the code for **LAKE**?

(A) 11-1-12-5

(B) 12-1-11-5

(C) 13-2-10-4

(D) 12-2-11-5

Q6. Sunita's mother is the only daughter of Ramesh's father. How is Ramesh related to Sunita?

(A) Father

(B) Brother

(C) Uncle

(D) Grandfather

Q7. X is Y's father. Y is Z's sister. W is X's mother. How is W related to Z?

(A) Mother

(B) Aunt

(C) Sister

(D) Grandmother

Q8. Seema faces South. She turns 90° to her right. She then turns 45° to her left. Which direction is she now facing?

(A) Southwest

(B) Northwest

(C) South

(D) West

Q9. Anil walks 6 m towards North. He then turns to his left and walks 8 m. How far is he from his starting point?

(A) 7 m

(B) 10 m

(C) 12 m

(D) 14 m

Q10. **Statements:**

All birds can fly.

Penguins are birds.

Conclusions:

I. Penguins can fly.

II. Some birds cannot fly.

(A) Only Conclusion II follows

(B) Both Conclusions I and II follow

(C) Only Conclusion I follows

(D) Neither Conclusion I nor II follows

Q11. **Statements:**

No table is a chair.

All chairs are sofas.

Conclusions:

I. No table is a sofa.

II. Some sofas are not tables.

(A) Only Conclusion I follows

(B) Both Conclusions I and II follow

(C) Neither Conclusion I nor II follows

(D) Only Conclusion II follows

Q12. **Statements:**

All mangoes are fruits.

Some fruits are vegetables.

Conclusions:

I. Some fruits are both mangoes and vegetables.

II. No mango is a vegetable.

(A) Neither Conclusion I nor Conclusion II follows

(B) Only Conclusion I follows

(C) Only Conclusion II follows

(D) Both Conclusions I and II follow

Q13. **Statement:** "Watching too much television adversely affects children's academic performance."

Conclusions:

I. All children who watch television perform poorly academically.

II. Children who watch television in moderation may not be adversely affected.

(A) Only Conclusion I follows

(B) Only Conclusion II follows

(C) Both Conclusions I and II follow

(D) Neither Conclusion I nor II follows

Q14. **Statement:** "Carry an umbrella whenever you go out during the monsoon season."

Assumptions:

I. It may rain unexpectedly during the monsoon season.
II. Carrying an umbrella can help protect from rain.

(A) Only Assumption II is implicit

(B) Only Assumption I is implicit

(C) Both Assumptions I and II are implicit

(D) Neither Assumption is implicit

Q15. **Statement:** "Should the voting age be lowered from 18 to 16 years?"

Arguments:
I. *Yes* — 16-year-olds already pay taxes in some countries.
II. *No* — Lowering the age adds administrative complexity with minimal civic benefit.

(A) Only Argument I is strong

(B) Only Argument II is strong

(C) Both Arguments are strong

(D) Neither Argument is strong

Q16. **Problem Statement:** "Crime rates in the city have increased significantly over the past year."

Courses of Action:
I. Increase police patrolling in high-crime areas.
II. Organise community awareness programmes on crime prevention.

(A) Both I and II follow

(B) Only I follows

(C) Only II follows

(D) Neither I nor II follows

Q17. Five students N, L, P, M, and O are seated in a row from left to right. N occupies the leftmost seat. L sits immediately to the right of N. O occupies the rightmost seat. P sits immediately to the left of M, with P in

the 3rd position and M in the 4th position. Who is sitting in the **middle** (3rd position)?

(A) M

(B) P

(C) N

(D) L

Q18. Six people P, Q, R, S, T, and U are seated around a circular table facing the centre. Q sits directly opposite T. R sits immediately to the right of Q (clockwise). S sits immediately to the left of T. U sits immediately to the left of Q. P occupies the remaining seat. Who is sitting **second to the left** of R?

(A) Q

(B) T

(C) U

(D) P

Q19. Five friends Ajay, Bindu, Chetan, Deepa, and Esha are compared by height. Chetan is the tallest. Ajay is shorter than Chetan but taller than Deepa. Deepa is taller than Bindu. Bindu is taller than Esha. Who is the **4th tallest** among the five?

(A) Chetan

(B) Ajay

(C) Deepa

(D) Bindu

Q20. Pen : Write :: Scissors : ?

(A) Cut

(B) Stitch

(C) Paste

(D) Press

Q21. 14 : 9 :: 26 : ?

(A) 15

(B) 21

(C) 22

(D) 31

Q22. Which of the following does **not** belong to the same group as the others?

Mercury, Venus, Earth, Moon, Mars

(A) Venus

(B) Mars

(C) Moon

(D) Earth

Q23. Which of the following is the **odd one out**?

2, 3, 5, 7, 9

(A) 2

(B) 3

(C) 5

(D) 9

Q24. **Effect:** Large crowds and massive traffic jams were observed in the city centre.

Which of the following is most likely the **cause**?

(A) A major national festival was being celebrated in the city centre.

(B) A new road was under construction in a distant suburb.

(C) The city's public library received a new collection of books.

(D) A small local vegetable market opened in a side lane.

Q25. **Statement:** "Students who participated in extracurricular activities showed a 30% improvement in academic scores compared to those who did not."

Which of the following is the **strongest** conclusion?

(A) Extracurricular activities reduce study time and should be discouraged.

(B) Participation in extracurricular activities appears positively correlated with academic performance.

(C) Academic scores depend only on extracurricular activities.

(D) All students must be forced to participate in all extracurricular activities.

Q26. **Event I:** Farmers in the region experienced significant crop losses due to pest infestation.

Event II: Food prices in the local markets increased sharply.

Which of the following best describes the relationship between the two events?

(A) Event II is the cause of Event I.

(B) Both events are independent of each other.

(C) Event I is the cause of Event II.

(D) Both are effects of excessive rainfall in the region.

Q27. How many times in a day (24 hours) do the minute hand and hour hand of a clock **coincide**?

(A) 20

(B) 21

(C) 23

(D) 22

Q28. If '$\times$' means '$+$', '$+$' means '$-$', '$-$' means '$\times$', and '$\div$' means '$\div$', then what is the value of:

$6 \times 4 + 8 - 3 \div 4 = ?$

(A) 4

(B) 6

(C) 8

(D) 2

Q29. **Question:** Is the number N even?

Statement 1: N is divisible by 4.

Statement 2: N^2 is even.

Which of the following is correct?

(A) Only Statement 1 alone is sufficient to answer the question.

(B) Either statement alone is sufficient to answer the question.

(C) Both statements together are needed to answer the question.

(D) Neither statement alone nor together is sufficient.

Q30. In a survey, 60 people speak Hindi, 40 speak English, and 20 speak both Hindi and English. In the Venn diagram representing this data, the region that lies **within the Hindi circle but outside the English circle** represents people who speak:

(A) Both Hindi and English

(B) Only English

(C) Only Hindi

(D) Neither Hindi nor English

Detailed Solutions

Q1.

Solution

The given series is: $2,\ 5,\ 10,\ 17,\ 26,\ ?$

Compute the differences between consecutive terms:

$$5-2=3, \qquad 10-5=5, \qquad 17-10=7, \qquad 26-17=9$$

The differences are $3,\ 5,\ 7,\ 9,\ \ldots$ — an arithmetic sequence increasing by 2 each time.

The next difference is $9+2=11$.

Therefore, the missing term is $26+11=\mathbf{37}$.

Answer: (B) Go Back to Q1

Q2.

Solution

The given series is: F, I, L, O, R, ?

Write the alphabetical positions of each letter:

$$\mathrm{F}=6, \quad \mathrm{I}=9, \quad \mathrm{L}=12, \quad \mathrm{O}=15, \quad \mathrm{R}=18$$

Each term increases by $+3$ positions in the alphabet.

The next position is $18+3=21$, which corresponds to the letter **U**.

Answer: (C) Go Back to Q2

Q3.

Solution

The given series is: $3,\ 9,\ 27,\ 81,\ 243,\ ?$

Each term is obtained by multiplying the previous term by 3 (geometric series, common ratio $=3$):

$$3\times 3=9, \qquad 9\times 3=27, \qquad 27\times 3=81, \qquad 81\times 3=243$$

The next term is $243 \times 3 = \mathbf{729}$.

Answer: (D) Go Back to Q3

Q4.

Solution

Coding rule: Each letter is shifted $+2$ positions forward in the alphabet.

Verification with **APPLE**:

$$A(1) \to C(3), \quad P(16) \to R(18), \quad P(16) \to R(18), \quad L(12) \to N(14), \quad E(5) \to G(7)$$

APPLE $\to$ CRRNG ✓

Applying the same rule to **GRAPE**:

$$G(7) \to I(9), \quad R(18) \to T(20), \quad A(1) \to C(3), \quad P(16) \to R(18), \quad E(5) \to G(7)$$

Therefore, GRAPE is coded as **ITCRG**.

Answer: (A) Go Back to Q4

Q5.

Solution

Coding rule: Each letter is replaced by its numerical position in the English alphabet.

Verification with **ROAD**:

$$R = 18, \quad O = 15, \quad A = 1, \quad D = 4 \implies \text{18-15-1-4} \checkmark$$

Applying the rule to **LAKE**:

$$L = 12, \quad A = 1, \quad K = 11, \quad E = 5 \implies \mathbf{12\text{-}1\text{-}11\text{-}5}$$

Answer: (B) Go Back to Q5

Q6.

Solution

"Sunita's mother is the only daughter of Ramesh's father."

Step-by-step reasoning:

- Ramesh's father has only one daughter.
- That only daughter is Sunita's mother.
- Therefore, Sunita's mother = Ramesh's sister.
- Since Ramesh is the brother of Sunita's mother, Ramesh is Sunita's **maternal uncle**.

Answer: (C) Go Back to Q6

Q7.

Solution

Given: X is Y's father. Y is Z's sister. W is X's mother.

Analysis:

- Since Y is Z's sister, both Y and Z share the same father; therefore X is also Z's father.
- W is X's mother, which means W is the mother of Z's father.
- Hence, W is Z's **paternal grandmother**.

Answer: (D) Go Back to Q7

Q8.

Solution

Initial direction: South.

Step 1 — Turn 90° to the right (clockwise rotation):

$$\text{South} \xrightarrow{+90^\circ \text{ (right)}} \text{West}$$

Step 2 — Turn 45° to the left (counterclockwise rotation) from West:

$$\text{West} \xrightarrow{-45^\circ \text{ (left)}} \text{Southwest}$$

Seema is now facing **Southwest**.

Answer: (A) Go Back to Q8

Q9.

Solution

Anil walks 6 m North, then turns left (i.e., towards West) and walks 8 m. The two displacements are perpendicular.

Applying the Pythagorean theorem:

$$d = \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = \mathbf{10}\ \text{m}$$

Anil is **10 m** from his starting point.

Answer: (B) Go Back to Q9

Q10.

Solution

Premises: All birds can fly. Penguins are birds.

Applying the premises strictly (without invoking real-world knowledge):

Conclusion I: Penguins can fly.
Since all birds can fly and penguins are birds, by direct deduction: penguins can fly. **Follows.**

Conclusion II: Some birds cannot fly.
This directly contradicts the premise "All birds can fly." **Does not follow.**

Only **Conclusion I** follows.

Answer: (C) Go Back to Q10

Q11.

Solution

Premises: No table is a chair ($T \cap C = \emptyset$). All chairs are sofas ($C \subseteq S$).

Conclusion I: No table is a sofa.
The premises give no direct information about the relationship between tables and sofas. Tables and sofas could still share members outside of chairs. **Does not necessarily follow.**

Conclusion II: Some sofas are not tables.
Since all chairs are sofas ($C \subseteq S$) and no table is a chair ($T \cap C = \emptyset$), the chairs that are also sofas cannot be tables. Assuming at least one chair exists, at least one sofa is not a table. **Follows.**

Only **Conclusion II** follows.

Answer: (D) Go Back to Q11

Q12.

Solution

Premises: All mangoes are fruits ($M \subseteq F$). Some fruits are vegetables ($F \cap V \neq \emptyset$).

Conclusion I: Some fruits are both mangoes and vegetables.
This requires $M \cap V \neq \emptyset$. The fruit-vegetable overlap may involve fruits other than mangoes; mangoes and vegetables need not intersect at all. **Does not necessarily follow.**

Conclusion II: No mango is a vegetable.
This claims $M \cap V = \emptyset$. The premises do not rule out some mangoes also being vegetables. **Does not necessarily follow.**

Neither Conclusion I nor Conclusion II necessarily follows.

Answer: (A) Go Back to Q12

Q13.

Solution

Statement: "Watching *too much* television adversely affects children's academic performance."

Conclusion I: All children who watch television perform poorly academically.
The statement is specifically about *too much* viewing, not television-watching in general. This conclusion over-generalises and is too extreme. **Does not follow.**

Conclusion II: Children who watch television in moderation may not be adversely affected.
The key phrase "too much" directly implies that moderate viewing may escape the adverse effect. This is a reasonable and valid inference. **Follows.**

Only **Conclusion II** follows.

Answer: (B) Go Back to Q13

Q14.

Solution

Statement: "Carry an umbrella whenever you go out during the monsoon season."

Assumption I: It may rain unexpectedly during the monsoon season.
This is implicit — the advice is meaningless unless there is a real possibility of rain. Without this assumption there is no reason to carry an umbrella. **Implicit.**

Assumption II: Carrying an umbrella can help protect from rain.
Also implicit — the recommendation presupposes that an umbrella is an effective protective measure. **Implicit.**

Both Assumptions I and II are implicit in the statement.

Answer: (C) Go Back to Q14

Q15.

Solution

Statement: Should the voting age be lowered from 18 to 16 years?

Argument I: *Yes* — 16-year-olds already pay taxes in some countries.
A **weak** argument. The claim is not universally applicable (only "some countries"), and tax liability alone does not demonstrate political maturity or civic readiness to vote. It does not address the core democratic rationale.

Argument II: *No* — Lowering the age adds administrative complexity with minimal civic benefit.
Also a **weak** argument. The assertion of "minimal civic benefit" is unsubstantiated and debatable. Administrative complexity is a logistical concern rather than a principled objection; it does not engage with the democratic merits of the proposal.

Neither Argument I nor Argument II is strong.

Answer: (D) Go Back to Q15

Q16.

Solution

Problem: Crime rates in the city have increased significantly.

Course I: Increase police patrolling in high-crime areas.
A direct, immediate, and practical response to rising crime; it targets the areas most in need. **Follows.**

Course II: Organise community awareness programmes on crime prevention.
A proactive measure that addresses underlying causes and involves citizens in crime prevention, complementing law enforcement efforts. **Follows.**

Both Courses of Action I and II follow.

Answer: (A) Go Back to Q16

Q17.

Solution

Clues:

- N is at the leftmost seat (Position 1).
- L sits immediately to the right of N (Position 2).
- P is at Position 3 and M is at Position 4 (P immediately left of M).
- O is at the rightmost seat (Position 5).

Final arrangement (left to right):

$$\underbrace{\text{N}}_{\text{Pos. 1}} \quad \underbrace{\text{L}}_{\text{Pos. 2}} \quad \underbrace{\text{P}}_{\text{Pos. 3}} \quad \underbrace{\text{M}}_{\text{Pos. 4}} \quad \underbrace{\text{O}}_{\text{Pos. 5}}$$

The student in the **middle (3rd) position** is **P**.

Answer: (B) Go Back to Q17

Q18.

Solution

Placing people clockwise (positions 1–6):

- Q directly opposite T $\Rightarrow$ Q at Position 1, T at Position 4.
- R immediately to the right of Q (clockwise) $\Rightarrow$ R at Position 2.
- S immediately to the left of T (one step before T clockwise) $\Rightarrow$ S at Position 3.
- U immediately to the left of Q (one step before Q clockwise) $\Rightarrow$ U at Position 6.
- P takes the remaining seat $\Rightarrow$ P at Position 5.

Clockwise arrangement:

$$\text{Q}(1) \to \text{R}(2) \to \text{S}(3) \to \text{T}(4) \to \text{P}(5) \to \text{U}(6) \to \text{Q}(1)$$

Second to the left of R (two steps counterclockwise from R at Position 2):

$$\text{R}(2) \xrightarrow{\text{1 left}} \text{Q}(1) \xrightarrow{\text{2 left}} \text{U}(6)$$

The person sitting second to the left of R is **U**.

Answer: (C) Go Back to Q18

Q19.

Solution

Given clues:

- Chetan is the tallest.
- Ajay is shorter than Chetan but taller than Deepa.
- Deepa is taller than Bindu.
- Bindu is taller than Esha.

Height ranking (tallest to shortest):

$$\text{Chetan} > \text{Ajay} > \text{Deepa} > \text{Bindu} > \text{Esha}$$

Rank	Name
1st (tallest)	Chetan
2nd	Ajay
3rd	Deepa
4th	Bindu
5th (shortest)	Esha

The **4th tallest** is **Bindu**.

Answer: (D) Go Back to Q19

Q20.

Solution

The analogy is based on the **primary function** of a tool:

- A **Pen** is used to **Write**.
- **Scissors** are used to **Cut**.

The answer is **Cut**.

Answer: (A) Go Back to Q20

Q21.

Solution

Identifying the pattern from the given pair:

$$14 \ : \ 9 \implies 14 - 5 = 9$$

Applying the same rule to 26:

$$26 - 5 = \mathbf{21}$$

The missing number is **21**.

Answer: (B) Go Back to Q21

Q22.

Solution

Classification:

- Mercury, Venus, Earth, Mars — all are **planets** of the Solar System.
- **Moon** — a natural **satellite** of Earth; it is not classified as a planet.

The odd one out is **Moon**.

Answer: (C) Go Back to Q22

Q23.

Solution

Classification:

- $2,\ 3,\ 5,\ 7$ — all **prime** numbers (divisible only by 1 and themselves).
- $\mathbf{9} = 3 \times 3$ — a **composite** number; it has a factor other than 1 and 9.

The odd one out is **9**.

Answer: (D) Go Back to Q23

Q24.

Solution

Effect: Large crowds and massive traffic jams in the city centre.

Evaluating each option:

- **(A)** A major national festival celebrated in the city centre — directly and fully explains both the large gathering of people and the heavy traffic. **Most likely cause.**
- (B) Road construction in a distant suburb — would not draw crowds or cause jams specifically in the city centre.
- (C) Library receiving new books — a minor event; unlikely to generate massive crowds.
- (D) A small local vegetable market opening — too small-scale to cause massive jams.

The most likely cause is **(A)**.

Answer: (A) Go Back to Q24

Q25.

Solution

Statement: Students in extracurricular activities showed a 30% improvement in academic scores.

Evaluating each conclusion:

- (A) Activities reduce study time and should be discouraged — directly contradicts the data showing improvement.
- **(B)** Participation appears positively correlated with academic performance — accurately and directly reflects what the data indicates, without overclaiming causation. **Strongest conclusion.**
- (C) Academic scores depend *only* on extracurricular activities — far too extreme; correlation is not sole causation.
- (D) All students must be forced to participate in all activities — prescriptive, extreme, and unsupported by the data.

The strongest conclusion is **(B)**.

Answer: (B) Go Back to Q25

Q26.

Solution

Event I: Crop losses due to pest infestation.
Event II: Food prices in local markets increased sharply.

Causal chain:

$$\text{Pest infestation} \Rightarrow \text{Crop losses} \Rightarrow \text{Reduced food supply} \Rightarrow \text{Higher food prices}$$

Crop losses (Event I) reduce the available supply of food. Reduced supply drives up prices, which is exactly what Event II describes.

Event I is the cause of Event II.

Answer: (C) Go Back to Q26

Q27.

Solution

The minute hand gains 5.5° per minute on the hour hand. The hands coincide when the minute hand has gained exactly 360° over the hour hand.

Time between successive coincidences:

$$\frac{360^\circ}{5.5^\circ/\text{min}} = \frac{720}{11} \approx 65.45 \text{ minutes}$$

In **12 hours** (720 minutes), the number of coincidences:

$$\frac{720}{\frac{720}{11}} = 11 \text{ times}$$

In **24 hours**: $11 \times 2 = \mathbf{22}$ times.

(Note: the hands do not coincide exactly every hour because the interval is slightly more than 60 minutes, giving only 11 — not 12 — coincidences per 12-hour period.)

Answer: (D) Go Back to Q27

Q28.

Solution

Operation substitution rule: $\times \to +, \quad + \to -, \quad - \to \times, \quad \div \to \div$

Original expression: $6 \times 4 \ + \ 8 \ - \ 3 \div 4$

After substitution: $6 + 4 \ - \ 8 \times 3 \div 4$

Applying BODMAS (multiplication and division before addition and subtraction):

$$\begin{aligned} 6 + 4 \ - \ 8 \times 3 \div 4 &= 6 + 4 \ - \ 24 \div 4 \\ &= 6 + 4 \ - \ 6 \\ &= 10 - 6 \\ &= \mathbf{4} \end{aligned}$$

Answer: (A) Go Back to Q28

Q29.

Solution

Question: Is N even?

Statement 1: N is divisible by 4.
Every multiple of 4 is even (since $4 = 2 \times 2$, any multiple of 4 is also a multiple of 2). Therefore N must be even. **Sufficient alone.**

Statement 2: N^2 is even.
If N were odd, then N^2 (odd $\times$ odd) would also be odd. Since N^2 is given to be even, N must be even. **Sufficient alone.**

Either statement alone is sufficient to answer the question.

Answer: (B) Go Back to Q29

Q30.

Solution

Survey data: Hindi = 60, English = 40, Both = 20.

In a Venn diagram with two overlapping circles (Hindi and English):

- The **overlapping region** represents people who speak *both* Hindi and English: 20 people.
- The region **inside the Hindi circle but outside the English circle** represents people who speak *only* Hindi: $60 - 20 = 40$ people.
- The region inside the English circle but outside the Hindi circle represents *only* English speakers: $40 - 20 = 20$ people.

The described region represents people who speak **Only Hindi**.

Answer: (C) Go Back to Q30

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
21	B	22	C	23	D	24	A	25	B
26	C	27	D	28	A	29	B	30	C