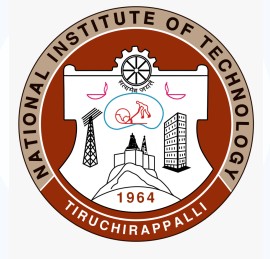


NIMCET 2026 June 6

Question Paper (Memory-Based) With Solutions

Conducted by NIT TRICHY



General Instructions

- (i) The examination will be conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries +4 marks for a correct answer and -1 mark for a wrong answer.
- (iii) The total number of questions is 120.
- (iv) Duration of the exam is 2 hours (120 minutes).

1. If $A \subseteq B$ and $B \subseteq C$, then cardinality of $A \cup B \cup C$ is equal to:

- (A) Cardinality of C
- (B) Cardinality of B
- (C) Cardinality of A
- (D) None of the above

Correct Answer: (A)

Solution:

Concept:

If one set is contained inside another, then taking their union does not create any new elements. The larger set already contains all elements of the smaller set.

Given:

$$A \subseteq B$$

and

$$B \subseteq C$$

This implies every element of A belongs to B , and every element of B belongs to C .

Therefore:

$$A \subseteq B \subseteq C$$

Step 1: Find $A \cup B$.

Since A is completely contained in B ,

$$A \cup B = B$$

because union adds no new element.

Step 2: Find $A \cup B \cup C$.

Using Step 1,

$$A \cup B \cup C = B \cup C$$

Again $B \subseteq C$, therefore

$$B \cup C = C$$

Hence

$$A \cup B \cup C = C$$

Step 3: Compare cardinalities.

Since

$$A \cup B \cup C = C$$

their cardinalities are equal:

$$|A \cup B \cup C| = |C|$$

$$\boxed{|A \cup B \cup C| = |C|}$$

Quick Tip: Whenever

$$A \subseteq B \subseteq C,$$

the union of all sets equals the largest set and the intersection equals the smallest set.

2. There are two sets A and B with $|A| = m$ and $|B| = n$. If $|P(A)| - |P(B)| = 112$, choose the wrong option.

(A) $m + n = 11$

(B) $2m - n = 3$

(C) $2m - n = 1$

(D) $3n - m = 5$

Correct Answer: (D)

Solution:

Concept:

If a set contains k elements, then its power set contains

$$2^k$$

elements.

Therefore,

$$|P(A)| = 2^m$$

and

$$|P(B)| = 2^n.$$

Step 1: Use the given condition.

$$2^m - 2^n = 112$$

Factorizing,

$$2^n(2^{m-n} - 1) = 112$$

Now

$$112 = 2^4 \times 7$$

Thus

$$2^n = 16$$

and

$$2^{m-n} - 1 = 7$$

$$2^{m-n} = 8$$

$$m - n = 3$$

Hence

$$n = 4, \quad m = 7$$

Step 2: Check each option.

Option (A):

$$m + n = 7 + 4 = 11$$

True.

Option (B):

$$2m - n = 14 - 4 = 10$$

Not equal to 1.

False.

Option (D):

$$3n - m = 12 - 7 = 5$$

True.

Therefore the wrong option is

(B)

Quick Tip: Whenever a power set question appears, immediately replace

$$|P(A)| = 2^{|A|}.$$

Then convert the problem into an equation involving powers of 2.

3. A survey is done among 200 people. 60% like tea and 72% like coffee. Let x be the number who like both. Let $m \leq x \leq n$. Find the correct option.

(A) $n - m = 56$

(B) $n - m = 28$

(C) $n - m = 32$

(D) $n + m = 92$

Correct Answer: (A)

Solution:

Concept:

For two sets,

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

The intersection cannot exceed the smaller set and cannot be less than the excess over total population.

Step 1: Find numbers liking tea and coffee.

Tea:

$$60\% \times 200 = 120$$

Coffee:

$$72\% \times 200 = 144$$

Step 2: Find minimum value of x .

$$120 + 144 - 200 = 64$$

Thus

$$x \geq 64$$

$$m = 64$$

Step 3: Find maximum value of x .

Maximum intersection equals smaller set.

$$x \leq 120$$

$$n = 120$$

Step 4: Compute $n - m$.

$$120 - 64 = 56$$

56

Hence option (A).

Quick Tip: For two-set survey problems:

$$\text{Minimum intersection} = n(A) + n(B) - N$$

and

$$\text{Maximum intersection} = \min(n(A), n(B)).$$

4. The maximum value of $\sin x + \sin(x + 1)$ is $k \cos \frac{1}{2}$. Find k .

- (A) 1
- (B) 3
- (C) 2
- (D) None of these

Correct Answer: (C)

Solution:

Concept:

Use the identity

$$\sin A + \sin B = 2 \sin \frac{A+B}{2} \cos \frac{A-B}{2}$$

to combine two sine functions.

Step 1: Apply sum-to-product identity.

$$\sin x + \sin(x + 1) = 2 \sin \left(x + \frac{1}{2} \right) \cos \frac{1}{2}$$

Step 2: Find maximum value.

Since

$$-1 \leq \sin \left(x + \frac{1}{2} \right) \leq 1,$$

maximum occurs when

$$\sin\left(x + \frac{1}{2}\right) = 1.$$

Therefore

$$\max = 2 \cos \frac{1}{2}$$

Comparing with

$$k \cos \frac{1}{2},$$

we obtain

$$k = 2.$$

$$\boxed{k = 2}$$

Quick Tip: Whenever a sum of sine functions appears, first convert it into product form using sum-to-product identities.

5. If the equation $\cos^4 \theta + \sin^4 \theta + \lambda = 0$ has real solutions, then λ lies in which interval?

- (A) $\left(-\frac{5}{4}, -1\right)$
- (B) $\left[-1, -\frac{1}{2}\right]$
- (C) $\left(-\frac{1}{2}, -\frac{1}{4}\right]$
- (D) $\left[-\frac{3}{2}, -\frac{5}{4}\right]$

Correct Answer: (B)

Solution:

Concept:

Use trigonometric identities to find the range of

$$\cos^4 \theta + \sin^4 \theta.$$

The equation will have real solutions only when λ cancels a value from this range.

Step 1: Simplify the expression.

$$\begin{aligned}\cos^4 \theta + \sin^4 \theta &= (\cos^2 \theta + \sin^2 \theta)^2 - 2 \sin^2 \theta \cos^2 \theta \\ &= 1 - 2 \sin^2 \theta \cos^2 \theta\end{aligned}$$

Using

$$\sin^2 \theta \cos^2 \theta = \frac{1}{4} \sin^2 2\theta,$$

we get

$$\cos^4 \theta + \sin^4 \theta = 1 - \frac{1}{2} \sin^2 2\theta$$

Step 2: Find the range.

Since

$$0 \leq \sin^2 2\theta \leq 1,$$

$$\frac{1}{2} \leq \cos^4 \theta + \sin^4 \theta \leq 1$$

Step 3: Use the equation.

Given

$$\cos^4 \theta + \sin^4 \theta + \lambda = 0$$

$$\lambda = -(\cos^4 \theta + \sin^4 \theta)$$

Hence

$$-1 \leq \lambda \leq -\frac{1}{2}$$

$$\lambda \in \left[-1, -\frac{1}{2} \right]$$

Quick Tip: For expressions involving

$$\sin^4 \theta + \cos^4 \theta,$$

always convert to

$$1 - \frac{1}{2} \sin^2 2\theta$$

to obtain the range quickly.

6. What is the decimal equivalent of binary number 101101?

- (A) 43
- (B) 45
- (C) 47
- (D) 49

Correct Answer: (B) 45

Solution:

Concept:

A binary number consists only of digits 0 and 1. Each digit represents a power of 2 depending upon its position from right to left.

For a binary number

$$b_n b_{n-1} \cdots b_1 b_0,$$

its decimal value is calculated as

$$b_n 2^n + b_{n-1} 2^{n-1} + \cdots + b_1 2^1 + b_0 2^0.$$

Thus, to convert a binary number into decimal form, we multiply each digit by its corresponding power of 2 and add the results.

Step 1: Write the positional values of the binary digits.

Given binary number:

101101

Assign powers of 2 from right to left:

$$\begin{array}{cccccc} 1 & 0 & 1 & 1 & 0 & 1 \\ 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 \end{array}$$

Step 2: Multiply each digit by its positional value.

$$\begin{aligned} 1 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0 \\ = 32 + 0 + 8 + 4 + 0 + 1 \end{aligned}$$

Step 3: Add all the obtained values.

$$32 + 8 + 4 + 1 = 45$$

Therefore,

$$(101101)_2 = (45)_{10}$$

45

Quick Tip: For binary-to-decimal conversion, remember:

$$2^0 = 1, \quad 2^1 = 2, \quad 2^2 = 4, \quad 2^3 = 8, \quad 2^4 = 16, \quad 2^5 = 32.$$

These powers appear frequently in competitive examinations.

7. Convert decimal number 25 into binary.

- (A) 11001
- (B) 10101
- (C) 11101
- (D) 10011

Correct Answer: (A) 11001

Solution:

Concept:

To convert a decimal number into binary, we repeatedly divide the number by 2 and record the remainders. The binary number is obtained by reading the remainders from bottom to top. This method is called the repeated division method.

Step 1: Divide the decimal number by 2 repeatedly.

$$25 \div 2 = 12 \text{ remainder } 1$$

$$12 \div 2 = 6 \text{ remainder } 0$$

$$6 \div 2 = 3 \text{ remainder } 0$$

$$3 \div 2 = 1 \text{ remainder } 1$$

$$1 \div 2 = 0 \text{ remainder } 1$$

Step 2: Write the remainders from bottom to top.

11001

Step 3: Verify the result.

$$1 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$$

$$= 16 + 8 + 0 + 0 + 1$$

$$= 25$$

Hence the conversion is correct.

11001

Quick Tip: For decimal-to-binary conversion: keep dividing by 2 until the quotient becomes 0, then read remainders upward.

8. Overflow occurs when:

- (A) Result exceeds storage
- (B) Memory is full
- (C) CPU stops
- (D) Program ends

Correct Answer: (A)

Solution:

Concept:

Computers store numbers using a fixed number of bits. Since only a limited number of bits are available, there is a maximum value and a minimum value that can be represented.

When a computation produces a value larger than the available storage capacity, overflow occurs.

Overflow is one of the most common errors in digital systems and computer arithmetic.

Step 1: Understand storage limitation.

Suppose a system uses 8 bits.

The maximum unsigned number that can be stored is:

$$11111111_2$$

which equals

$$255_{10}$$

Step 2: Consider an arithmetic operation.

If we add

$$255 + 1$$

the result becomes

$$256$$

which cannot be represented using only 8 bits.

Step 3: Identify the condition.

Since the result exceeds the available storage range,

Overflow occurs

Thus overflow is directly related to arithmetic results exceeding storage capacity.

Result exceeds storage

Quick Tip: Overflow is an arithmetic problem, not a memory problem. It occurs when the result is too large (or too small) to fit into the allotted bits.

9. Floating-point representation is mainly used for:

- (A) Characters
- (B) Integers
- (C) Real numbers
- (D) Logic values

Correct Answer: (C)

Solution:

Concept:

Many scientific and engineering calculations involve numbers containing fractional parts such as:

3.14, 0.005, 125.78

Such values cannot be represented efficiently using ordinary integer representation. Floating-point representation stores numbers in the form:

$$\text{Mantissa} \times \text{Base}^{\text{Exponent}}$$

which allows representation of very large and very small real numbers.

Step 1: Understand integer representation.

Integers include values such as:

5, 100, -20

These can be stored directly using integer formats.

Step 2: Consider numbers with fractions.

Examples:

2.75, 0.125, 3.14159

These require decimal precision.

Step 3: Purpose of floating-point representation.

Floating-point format is specifically designed for:

Real Numbers

Therefore,

Real numbers

Quick Tip: Whenever you see decimal values or scientific notation, floating-point representation is used instead of integer representation.

10. IEEE 754 single precision uses:

- (A) 16 bits
- (B) 32 bits
- (C) 64 bits
- (D) 128 bits

Correct Answer: (B)

Solution:

Concept:

IEEE 754 is the internationally accepted standard for floating-point representation in computers.

It specifies how real numbers are stored and manipulated in hardware and software.

The standard defines different precisions such as:

Single Precision

and

Double Precision

with fixed bit allocations.

Step 1: Recall IEEE 754 single precision format.

Single precision uses:

32 bits

These bits are divided as:

1 sign bit

8 exponent bits

23 mantissa bits

Step 2: Calculate total bits.

$$1 + 8 + 23 = 32$$

Step 3: Compare with given options.

The correct choice is:

32 bits

32 bits

Quick Tip: Remember these IEEE 754 standards:

Single Precision = 32 bits

Double Precision = 64 bits

11. The price of a laptop is first increased by $x\%$, then decreased by $x\%$. The new price becomes $\frac{7}{16}$ of the original price. Find the value of x .

- (A) 50%
- (B) 25%
- (C) 75%
- (D) 62.5%

Correct Answer: (C)

Solution:

Concept:

When a quantity is increased by $x\%$ and then decreased by the same $x\%$, the net effect is always a decrease.

The formula for successive percentage changes is:

$$\text{Final Value} = \text{Original Value} \left(1 + \frac{x}{100}\right) \left(1 - \frac{x}{100}\right)$$

Using the identity

$$(1 + a)(1 - a) = 1 - a^2,$$

we obtain

$$\text{Final Value} = \text{Original Value} \left(1 - \frac{x^2}{10000}\right).$$

Step 1: Form the equation using the given information.

Let the original price be P .

After increase and decrease,

$$P \left(1 - \frac{x^2}{10000} \right) = \frac{7}{16}P.$$

Cancelling P ,

$$1 - \frac{x^2}{10000} = \frac{7}{16}.$$

Step 2: Solve for x^2 .

$$\frac{x^2}{10000} = 1 - \frac{7}{16} = \frac{9}{16}.$$

Therefore,

$$x^2 = 10000 \times \frac{9}{16} = 625 \times 9 = 5625.$$

Step 3: Find the value of x .

$$x = \sqrt{5625} = 75.$$

Hence,

$$x = 75\%$$

Quick Tip: Increase by $x\%$ and decrease by $x\%$ never cancel each other. The net percentage change is

$$-\frac{x^2}{100}\%.$$

12. The average weight of 24 students in a class is 52 kg. If the weight of the teacher is added, the average increases by 1 kg. Find the weight of the teacher.

(A) 76 kg

- (B) 77 kg
- (C) 75 kg
- (D) 53 kg

Correct Answer: (B)

Solution:

Concept:

Average is defined as

$$\text{Average} = \frac{\text{Total Sum}}{\text{Number of Observations}}.$$

When a new member is added to a group, the total sum changes and therefore the average changes.

Step 1: Calculate the total weight of the students.

Number of students

$$= 24$$

Average weight

$$= 52 \text{ kg}$$

Therefore,

$$\text{Total weight} = 24 \times 52 = 1248 \text{ kg.}$$

Step 2: Find the new total weight after adding the teacher.

The average increases by 1 kg.

Hence new average

$$= 53 \text{ kg.}$$

Total persons

$$= 24 + 1 = 25.$$

Therefore,

$$\text{New Total Weight} = 25 \times 53 = 1325 \text{ kg.}$$

Step 3: Calculate the teacher's weight.

$$\text{Teacher's Weight} = 1325 - 1248 = 77 \text{ kg.}$$

Thus,

$$\boxed{77 \text{ kg}}$$

Quick Tip: Whenever one person is added, first calculate the old total and the new total. The difference gives the weight (or marks) of the added person.

13. The difference between Compound Interest (compounded annually) and Simple Interest on a certain sum of money at 10% per annum for 3 years is 155. Find the principal sum.

- (A) 4000
- (B) 5000
- (C) 6000
- (D) 5500

Correct Answer: (B)

Solution:

Concept:

For three years,

$$\text{CI} - \text{SI} = P \left(\frac{r}{100} \right)^2 \left(3 + \frac{r}{100} \right).$$

This formula directly gives the difference between Compound Interest and Simple Interest.

Step 1: Substitute the given rate.

Given,

$$r = 10\%$$

and

$$CI - SI = 155.$$

Therefore,

$$155 = P \left(\frac{10}{100} \right)^2 \left(3 + \frac{10}{100} \right).$$

Step 2: Simplify the expression.

$$155 = P \left(\frac{1}{10} \right)^2 \left(\frac{31}{10} \right).$$

$$155 = P \left(\frac{31}{1000} \right).$$

Step 3: Find the principal.

$$P = 155 \times \frac{1000}{31}.$$

$$P = 5000.$$

Hence,

5000

Quick Tip: For 3 years,

$$CI - SI = P \left(\frac{r}{100} \right)^2 \left(3 + \frac{r}{100} \right).$$

This shortcut saves a lot of calculation.

14. A dishonest dealer claims to sell his goods at a loss of 10% on cost price but uses a false weight of 800 g instead of 1 kg. Find his actual profit or loss percentage.

- (A) 12.5% profit
- (B) 10% loss
- (C) 11.11% profit
- (D) 25% profit

Correct Answer: (A)

Solution:

Concept:

In dishonest weighing problems, the seller charges for one quantity but delivers a smaller quantity.

Actual profit must be calculated using the real quantity supplied and the amount received.

Step 1: Assume the cost price of 1 kg is 100.

Then,

$$CP = 100.$$

He claims a loss of 10%.

Thus selling price charged for 1 kg is

$$SP = 100 - 10 = 90.$$

Step 2: Determine the actual cost of goods delivered.

He delivers only 800 g.

Cost of 800 g

$$= 100 \times \frac{800}{1000} = 80.$$

Step 3: Calculate actual profit.

Amount received

$$= 90.$$

Actual cost

$$= 80.$$

Profit

$$= 90 - 80 = 10.$$

Step 4: Find profit percentage.

$$\text{Profit \%} = \frac{10}{80} \times 100 = 12.5\%.$$

Hence,

12.5% profit

Quick Tip: In false-weight questions, first find the actual quantity delivered. Then calculate profit using the real cost of that quantity.

15. A jar contains a mixture of two liquids A and B in the ratio 4 : 1. When 10 liters of the mixture is taken out and 10 liters of liquid B is poured into the jar, the ratio becomes 2 : 3. How many liters of liquid A was contained in the jar initially?

- (A) 12 l
- (B) 16 l

(C) 20 l

(D) 24 l

Correct Answer: (B)

Solution:

Concept:

When a quantity of mixture is removed, both liquids are removed in the same proportion as they exist in the mixture.

This principle is frequently used in replacement and allegation problems.

Step 1: Assume the initial quantities.

Let the initial quantities be

$$A = 4x, \quad B = x.$$

Total mixture

$$= 5x.$$

Step 2: Determine the quantities removed.

Since the ratio is 4 : 1,
from 10 liters removed:

$$A \text{ removed} = 10 \times \frac{4}{5} = 8 \text{ liters.}$$

$$B \text{ removed} = 10 \times \frac{1}{5} = 2 \text{ liters.}$$

Remaining:

$$A = 4x - 8,$$

$$B = x - 2.$$

Step 3: Add 10 liters of liquid B.

New quantity of B:

$$x - 2 + 10 = x + 8.$$

Thus new ratio is

$$\frac{4x - 8}{x + 8} = \frac{2}{3}.$$

Step 4: Solve the equation.

$$3(4x - 8) = 2(x + 8)$$

$$12x - 24 = 2x + 16$$

$$10x = 40$$

$$x = 4.$$

Therefore

$$A = 4x = 16.$$

Hence,

16 liters

Therefore the correct option is

(B)

Quick Tip: When some mixture is removed, each ingredient is removed in exactly the same ratio as present in the mixture.

16. A person who deliberately sets fire to buildings or property.

- (A) Iconoclast
- (B) Pyromaniac
- (C) Misanthrope
- (D) Philanthropist

Correct Answer: (B)

Solution:

Concept:

One-word substitutions are used to replace a long description with a single precise word. Such words improve vocabulary, comprehension, and communication skills.

The word **Pyromaniac** refers to a person who has a strong obsession with fire and may deliberately set fire to buildings, forests, vehicles, or other property.

Step 1: Understand the meaning given in the question.

The question describes:

“A person who deliberately sets fire to buildings or property.”

The key idea is the intentional act of starting fires.

Step 2: Analyze each option carefully.

Iconoclast

A person who attacks established beliefs or traditions.

This has no relation to setting fires.

Pyromaniac

A person obsessed with fire and fire-setting.

This exactly matches the given description.

Misanthrope

A person who dislikes mankind or society.

This is unrelated to arson.

Philanthropist

A person who works for the welfare of others.

This is the opposite of destructive behavior.

Step 3: Select the most appropriate word.

Since the person intentionally sets fires,

Pyromaniac

is the correct answer.

Quick Tip: Remember:

Pyro = Fire

Maniac = Person obsessed with something

Therefore, Pyromaniac = A person obsessed with fire.

17. One who studies ancient inscriptions and writings.

- (A) Archaeologist
- (B) Epigraphist
- (C) Numismatist
- (D) Genealogist

Correct Answer: (B)

Solution:

Concept:

Many specialized fields of study have specific names for their practitioners. An epigraphist studies inscriptions engraved on stones, pillars, monuments, metals, and ancient artifacts. These inscriptions provide valuable historical information about rulers, kingdoms, languages, and cultures.

Step 1: Identify the key phrase in the question.

The important words are:

“ancient inscriptions and writings”

The answer must refer specifically to the study of inscriptions.

Step 2: Examine the options.

Archaeologist

Studies ancient civilizations through artifacts and excavations.

Although related to history, this is not specifically the study of inscriptions.

Epigraphist

Studies inscriptions engraved on historical objects.

This matches exactly.

Numismatist

Studies coins and currency.

Not related to inscriptions.

Genealogist

Studies family history and ancestry.

Not relevant here.

Step 3: Choose the correct word.

The appropriate one-word substitution is

Epigraphist

Quick Tip: Epi = Upon

Graph = Writing

Epigraphist = One who studies writings engraved upon surfaces such as stones and monuments.

18. One who collects and studies coins.

- (A) Philatelist
- (B) Numismatist
- (C) Archivist
- (D) Antiquarian

Correct Answer: (B)

Solution:

Concept:

The study and collection of coins, medals, and currency is called **Numismatics**. A person engaged in this field is known as a **Numismatist**.

Coins provide valuable information about ancient rulers, economies, religions, and historical periods.

Step 1: Understand the description.

The question asks for:

“One who collects and studies coins.”

Therefore the answer must specifically relate to coins.

Step 2: Analyze the options.

Philatelist

Collects postage stamps.

Incorrect.

Numismatist

Collects and studies coins and currency.

Correct.

Archivist

Maintains historical records and documents.

Not specifically coins.

Antiquarian

Studies or collects antiques.

Too broad.

Step 3: Select the correct option.

Hence,

Numismatist

is the correct answer.

Quick Tip: Common vocabulary pair:

Philatelist → Stamps

Numismatist → Coins

19. A person who believes that pleasure is the highest good.

- (A) Stoic
- (B) Cynic
- (C) Hedonist
- (D) Ascetic

Correct Answer: (C)

Solution:

Concept:

Hedonism is a philosophical belief that pleasure and happiness are the most important goals in life.

A person who follows this philosophy is called a **Hedonist**.

Step 1: Identify the central idea.

The question emphasizes:

“pleasure is the highest good.”

This is the defining feature of hedonism.

Step 2: Study each option.

Stoic

A person who endures hardship calmly.

Not focused on pleasure.

Cynic

A person who distrusts human motives.

Not appropriate.

Hedonist

A person who seeks pleasure as the primary goal of life.

Exactly correct.

Ascetic

A person who avoids worldly pleasures.

This is almost the opposite of a hedonist.

Step 3: Choose the best answer.

Therefore,

Hedonist

is the correct one-word substitution.

Quick Tip: Hedonist = Seeks pleasure

Ascetic = Rejects pleasure

These two words are often asked as opposites in examinations.

20. A person who opposes established beliefs and traditions.

- (A) Heretic
- (B) Fanatic
- (C) Disciple
- (D) Martyr

Correct Answer: (A)

Solution:

Concept:

A **Heretic** is a person who challenges, rejects, or opposes accepted doctrines, beliefs, customs, or traditions, especially in religion and philosophy.

Historically, people who questioned established religious teachings were often called heretics.

Step 1: Understand the meaning given in the question.

The statement describes:

“A person who opposes established beliefs and traditions.”

The key idea is opposition to accepted doctrines.

Step 2: Examine each option.

Heretic

A person who opposes accepted beliefs or doctrines.

Correct.

Fanatic

A person with extreme enthusiasm for a belief.

Usually supports rather than opposes beliefs.

Disciple

A follower of a teacher or doctrine.

Opposite meaning.

Martyr

A person who suffers for a cause or belief.

Not necessarily one who opposes traditions.

Step 3: Select the correct word.

Thus the correct one-word substitution is

Heretic

Quick Tip: Heretic = Opposes accepted beliefs

Disciple = Follows accepted teachings

These words are commonly tested together in vocabulary questions.