



THE MATH HUB

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Number System MCQs

100 FULLY SOLVED MCQs

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PART 5 - NUMBER SYSTEM | 100 SOLVED MCQs

Fast Number System Foundation

Number families

$$\mathbb{N} \subset \mathbb{W} \subset \mathbb{Z} \subset \mathbb{Q} \subset \mathbb{R}$$

Whole numbers include 0; integers also include negative whole numbers. Rational numbers have the form

$$\frac{p}{q}, \quad q \neq 0.$$

HCF and LCM For two positive integers a, b ,

$$ab = \text{HCF}(a, b) \text{LCM}(a, b).$$

Use minimum prime powers for HCF and maximum prime powers for LCM.

Remainder form

$$N = dq + r, \quad 0 \leq r < d.$$

Equivalently,

$$N \equiv r \pmod{d}.$$

Unit-digit cycles

$$2 : 2, 4, 8, 6 \quad 3 : 3, 9, 7, 1$$

$$7 : 7, 9, 3, 1 \quad 8 : 8, 4, 2, 6$$

Most cycles repeat every 4 powers; 4 and 9 repeat every 2.

Divisibility speed rules

2 : last digit even, 5 : last digit 0 or 5

3, 9 : use digit sum

4 : last two digits, 8 : last three digits

For 11, use the alternating digit sum test.

Prime factor form and factor count If

$$N = p_1^{a_1} p_2^{a_2} \dots p_k^{a_k},$$

then

$$\tau(N) = (a_1 + 1)(a_2 + 1) \dots (a_k + 1).$$

MCQ 1

Which of the following is an integer but not a whole number?

- A. 5
B. 0
C. -7
D. $\frac{1}{2}$

Solution

$$-7 \in \mathbb{Z}$$

$$-7 < 0$$

$\therefore -7$ is an integer but not a whole number

Final Answer

Option C

MCQ 2

Which of the following is irrational?

- A. $\frac{7}{8}$
B. 0.125
C. $\sqrt{2}$
D. 0.3

Solution

$$\sqrt{2} \notin \mathbb{Q}$$

$\sqrt{2}$ is irrational

Final Answer

Option C

MCQ 3

Which of the following is rational?

- A. $\sqrt{3}$
B. π
C. $\frac{11}{13}$
D. $\sqrt{5}$

Solution

$$\frac{11}{13} = \frac{p}{q}, \quad p, q \in \mathbb{Z}, \quad q \neq 0$$

$$\therefore \frac{11}{13} \in \mathbb{Q}$$

Final Answer

Option C

MCQ 4

Find $|-38|$.

- A. 38
B. -38
C. 0
D. 76

Solution

$$|-38| = 38$$

Final Answer

Option A

MCQ 5

What is the additive inverse of -17?

- A. -17
B. 0
C. 17
D. $\frac{1}{17}$

Solution

$$-17 + 17 = 0$$

$$\therefore \text{additive inverse} = 17$$

Final Answer

Option C

MCQ 6

What is the multiplicative identity?

- A. 0
B. 1
C. -1
D. 10

Solution

$$a \times 1 = a$$

$$\therefore 1$$

Final Answer

Option B

MCQ 7

Find the sum of the first 20 natural numbers.

- A. 190
B. 200
C. 210
D. 220

Solution

$$\begin{aligned} S &= \frac{n(n+1)}{2} \\ &= \frac{20(21)}{2} \\ &= 10(21) = 210 \end{aligned}$$

Final Answer

Option C

MCQ 8

Find the sum of the first 15 odd positive integers.

- A. 180
B. 210
C. 225
D. 240

Solution

$$\begin{aligned} 1 + 3 + 5 + \dots + (2n-1) &= n^2 \\ &= 15^2 = 225 \end{aligned}$$

Final Answer

Option C

MCQ 9

Find the sum of the first 10 even positive integers.

- A. 90 B. 100
C. 110 D. 120

Solution

$$2 + 4 + \dots + 20 = 2(1 + 2 + \dots + 10)$$

$$= 2 \left(\frac{10(11)}{2} \right) = 110$$

Final Answer

Option C

MCQ 10

Find the difference between the place value and face value of digit 5 in 7532.

- A. 45 B. 495
C. 500 D. 505

Solution

$$\text{Place value} = 5 \times 100 = 500$$

$$\text{Face value} = 5$$

$$500 - 5 = 495$$

Final Answer

Option B

MCQ 11

Which number is divisible by 2?

- A. 315 B. 427
C. 538 D. 791

Solution

$$538 \text{ ends in } 8$$

$$8 \text{ is even}$$

$$\therefore 538 \div 2 = 269$$

Final Answer

Option C

MCQ 12

Which number is divisible by 3?

- A. 124 B. 235
C. 417 D. 502

Solution

$$4 + 1 + 7 = 12$$

$$12 \div 3 = 4$$

$$\therefore 417 \text{ is divisible by } 3$$

Final Answer

Option C

MCQ 13

Which number is divisible by 4?

- A. 314 B. 526
C. 732 D. 918

Solution

$$\text{Last two digits of } 732 = 32$$

$$32 \div 4 = 8$$

$$\therefore 732 \text{ is divisible by } 4$$

Final Answer

Option C

MCQ 14

Which number is divisible by 5?

- A. 426 B. 735
C. 842 D. 963

Solution

$$735 \text{ ends in } 5$$

$$\therefore 735 \text{ is divisible by } 5$$

Final Answer

Option B

MCQ 15

Which number is divisible by 6?

- A. 214 B. 318
C. 425 D. 517

Solution

318 is even

$$3 + 1 + 8 = 12$$

12 is divisible by 3

 $\therefore$ 318 is divisible by 6**Final Answer**

Option B

MCQ 16

Which number is divisible by 8?

- A. 714 B. 824
C. 936 D. 1050

Solution

Last three digits = 824

$$824 \div 8 = 103$$

 $\therefore$ 824 is divisible by 8**Final Answer**

Option B

MCQ 17

Which number is divisible by 9?

- A. 451 B. 729
C. 814 D. 932

Solution

$$7 + 2 + 9 = 18$$

$$18 \div 9 = 2$$

 $\therefore$ 729 is divisible by 9**Final Answer**

Option B

MCQ 18

Which number is divisible by 10?

- A. 450 B. 455
C. 465 D. 475

Solution

450 ends in 0

 $\therefore$ 450 is divisible by 10**Final Answer**

Option A

MCQ 19

Which number is divisible by 11?

- A. 121 B. 123
C. 125 D. 127

Solution

$$121 = 11 \times 11$$

 $\therefore$ 121 is divisible by 11**Final Answer**

Option A

MCQ 20Find the digit x if $53x$ is divisible by 9.

- A. 0 B. 1
C. 2 D. 3

Solution

$$5 + 3 + x = 8 + x$$

$$8 + x = 9$$

$$x = 1$$

Final Answer

Option B

MCQ 21

What is the smallest prime number?

- A. 0 B. 1
C. 2 D. 3

Solution

2 has exactly two positive factors: 1, 2

2

Final Answer

Option C

MCQ 22

What is the only even prime number?

- A. 1 B. 2
C. 4 D. 6

Solution

2 is even

Factors of 2 : 1, 2

 $\therefore$ 2**Final Answer**

Option B

MCQ 23

How many prime numbers lie between 10 and 30?

- A. 5 B. 6
C. 7 D. 8

Solution

11, 13, 17, 19, 23, 29

Count = 6

Final Answer

Option B

MCQ 24

Find the prime factorization of 360.

- A. $2^2 \cdot 3^2 \cdot 5$ B. $2^3 \cdot 3^2 \cdot 5$
C. $2^3 \cdot 3 \cdot 5^2$ D. $2^4 \cdot 3^2$

Solution

$$360 = 36 \times 10$$

$$= (2^2 \cdot 3^2)(2 \cdot 5)$$

$$= 2^3 \cdot 3^2 \cdot 5$$

Final Answer

Option B

MCQ 25

What is the greatest prime factor of 231?

- A. 7 B. 11
C. 21 D. 33

Solution

$$231 \div 3 = 77$$

$$77 = 7 \times 11$$

$$231 = 3 \times 7 \times 11$$

Greatest prime factor = 11

Final Answer

Option B

MCQ 26

How many positive factors does 72 have?

- A. 10 B. 12
C. 14 D. 16

Solution

$$72 = 2^3 \cdot 3^2$$

$$\tau(72) = (3+1)(2+1)$$

$$= 4 \times 3 = 12$$

Final Answer

Option B

MCQ 27

How many positive factors does 100 have?

- A. 6 B. 8
C. 9 D. 10

Solution

$$100 = 2^2 \cdot 5^2$$

$$\tau(100) = (2+1)(2+1)$$

$$= 9$$

Final Answer

Option C

MCQ 28

Which of the following is a perfect square?

- A. 72 B. 81
C. 90 D. 108

Solution

$$81 = 9^2$$

$$\therefore \boxed{81}$$

Final Answer

Option B

MCQ 29

Which pair is relatively prime (coprime)?

- A. 12 and 18 B. 14 and 25
C. 21 and 35 D. 24 and 36

Solution

$$14 = 2 \times 7$$

$$25 = 5^2$$

$$\text{HCF}(14, 25) = 1$$

Final Answer

Option B

MCQ 30

Find the greatest prime number less than 50.

- A. 43 B. 45
C. 47 D. 49

Solution

$$49 = 7^2 \text{ is composite}$$

$$47 \text{ has no prime divisor } \leq \sqrt{47}$$

$$\therefore \boxed{47}$$

Final Answer

Option C

MCQ 31

Find the least multiple of 8 greater than 50.

- A. 52 B. 54
C. 56 D. 64

Solution

$$8 \times 6 = 48 < 50$$

$$8 \times 7 = 56 > 50$$

$$\boxed{56}$$

Final Answer

Option C

MCQ 32

Which number is a common multiple of 6 and 8?

- A. 18 B. 24
C. 30 D. 42

Solution

$$24 = 6 \times 4$$

$$24 = 8 \times 3$$

$$\therefore \boxed{24}$$

Final Answer

Option B

MCQ 33

Which of the following is not a factor of 36?

- A. 4 B. 6
C. 8 D. 9

Solution

$$36 \div 4 = 9$$

$$36 \div 6 = 6$$

$$36 \div 9 = 4$$

$$36 \div 8 = 4.5$$

$$\therefore \boxed{8}$$

Final Answer

Option C

MCQ 34

How many multiples of 7 are there from 1 to 100?

- A. 13 B. 14
C. 15 D. 16

Solution

$$7 \times 14 = 98$$

$$7 \times 15 = 105 > 100$$

$$\text{Count} = 14$$

Final Answer

Option B

MCQ 35

Find the greatest two-digit multiple of 13.

- A. 78 B. 91
C. 96 D. 99

Solution

$$13 \times 7 = 91$$

$$13 \times 8 = 104$$

$$\therefore \boxed{91}$$

Final Answer

Option B

MCQ 36

Find the smallest three-digit multiple of 17.

- A. 102 B. 108
C. 119 D. 136

Solution

$$17 \times 5 = 85 < 100$$

$$17 \times 6 = 102$$

$$\boxed{102}$$

Final Answer

Option A

MCQ 37

How many multiples of 4 are there from 1 to 100?

- A. 20 B. 24
C. 25 D. 26

Solution

$$4 \times 25 = 100$$

Multiples: 4, 8, ..., 100

$$\text{Count} = 25$$

Final Answer

Option C

MCQ 38

Find the sum of the first 10 positive multiples of 3.

- A. 135 B. 150
C. 165 D. 180

Solution

$$3 + 6 + \dots + 30 = 3(1 + 2 + \dots + 10)$$

$$= 3 \left(\frac{10 \cdot 11}{2} \right)$$

$$= 3(55) = 165$$

Final Answer

Option C

MCQ 39If n is a multiple of 12, which number must divide n ?

- A. 5 B. 7
C. 6 D. 8

Solution

$$12 = 2 \times 6$$

$$n = 12k = 6(2k)$$

$$\therefore 6 \mid n$$

Final Answer

Option C

MCQ 40

Find the least positive number that is a multiple of both 9 and 15.

- A. 30 B. 45
C. 60 D. 90

Solution

$$9 = 3^2$$

$$15 = 3 \times 5$$

$$\text{LCM} = 3^2 \times 5 = 45$$

Final Answer

Option B

MCQ 41

Find the HCF of 24 and 36.

- A. 6 B. 8
C. 12 D. 18

Solution

$$24 = 2^3 \cdot 3$$

$$36 = 2^2 \cdot 3^2$$

$$\text{HCF} = 2^2 \cdot 3 = 12$$

Final Answer

Option C

MCQ 42

Find the LCM of 12 and 18.

- A. 24 B. 36
C. 54 D. 72

Solution

$$12 = 2^2 \cdot 3$$

$$18 = 2 \cdot 3^2$$

$$\text{LCM} = 2^2 \cdot 3^2 = 36$$

Final Answer

Option B

MCQ 43

Find the HCF of 54 and 90.

- A. 9 B. 18
C. 27 D. 36

Solution

$$54 = 2 \cdot 3^3$$

$$90 = 2 \cdot 3^2 \cdot 5$$

$$\text{HCF} = 2 \cdot 3^2 = 18$$

Final Answer

Option B

MCQ 44

Find the LCM of 8, 12, 15.

- A. 60 B. 90
C. 120 D. 240

Solution

$$8 = 2^3$$

$$12 = 2^2 \cdot 3$$

$$15 = 3 \cdot 5$$

$$\text{LCM} = 2^3 \cdot 3 \cdot 5 = 120$$

Final Answer

Option C

MCQ 45

Find the HCF of 48, 72, 120.

- A. 12 B. 18
C. 24 D. 36

Solution

$$48 = 2^4 \cdot 3$$

$$72 = 2^3 \cdot 3^2$$

$$120 = 2^3 \cdot 3 \cdot 5$$

$$\text{HCF} = 2^3 \cdot 3 = 24$$

Final Answer

Option C

MCQ 46

Find the LCM of 21 and 28.

- A. 42 B. 56
C. 84 D. 168

Solution

$$21 = 3 \cdot 7$$

$$28 = 2^2 \cdot 7$$

$$\text{LCM} = 2^2 \cdot 3 \cdot 7 = 84$$

Final Answer

Option C

MCQ 47

Two positive integers have HCF 6 and LCM 180. If one number is 30, find the other.

- A. 24 B. 30
C. 36 D. 42

Solution

$$ab = \text{HCF}(a, b) \text{ LCM}(a, b)$$

$$30b = 6 \times 180$$

$$b = \frac{1080}{30} = 36$$

Final Answer

Option C

MCQ 48

Find the HCF of 96 and 144.

- A. 24 B. 36
C. 48 D. 72

Solution

$$96 = 2^5 \cdot 3$$

$$144 = 2^4 \cdot 3^2$$

$$\text{HCF} = 2^4 \cdot 3 = 48$$

Final Answer

Option C

MCQ 49

Find the LCM of 14, 35, 20.

- A. 70 B. 120
C. 140 D. 280

Solution

$$14 = 2 \cdot 7$$

$$35 = 5 \cdot 7$$

$$20 = 2^2 \cdot 5$$

$$\text{LCM} = 2^2 \cdot 5 \cdot 7 = 140$$

Final Answer

Option C

MCQ 50

If the HCF of two numbers is 8 and their LCM is 96, what is their product?

- A. 384 B. 576
C. 768 D. 864

Solution

$$ab = \text{HCF} \times \text{LCM}$$

$$= 8 \times 96 = 768$$

Final Answer

Option C

MCQ 51A rectangular floor is 12 m $\times$ 18 m. What is the largest square tile side that can cover it exactly?

- A. 3 m B. 4 m
C. 6 m D. 9 m

Solution

$$\text{Required side} = \text{HCF}(12, 18)$$

$$= 6 \text{ m}$$

Final Answer

Option C

MCQ 52

Three bells ring every 12, 18, and 30 seconds. After how many seconds will they ring together again?

- A. 90 B. 120
C. 180 D. 360

Solution

$$12 = 2^2 \cdot 3$$

$$18 = 2 \cdot 3^2$$

$$30 = 2 \cdot 3 \cdot 5$$

$$\text{LCM} = 2^2 \cdot 3^2 \cdot 5 = 180$$

Final Answer

Option C

MCQ 53

Find the greatest number that divides 122 and 202, leaving remainder 2 each time.

- A. 20 B. 40
C. 60 D. 80

Solution

$$122 - 2 = 120$$

$$202 - 2 = 200$$

$$\text{HCF}(120, 200) = 40$$

Final Answer

Option B

MCQ 54

Find the smallest positive number divisible by 12, 15, 20.

- A. 30 B. 40
C. 60 D. 120

Solution

$$12 = 2^2 \cdot 3$$

$$15 = 3 \cdot 5$$

$$20 = 2^2 \cdot 5$$

$$\text{LCM} = 2^2 \cdot 3 \cdot 5 = 60$$

Final Answer

Option C

MCQ 55

Find the smallest number that leaves remainder 2 when divided by 5, 6, 8.

- A. 62 B. 120
C. 122 D. 242

Solution

$$\text{LCM}(5, 6, 8) = 120$$

$$N = 120 + 2 = 122$$

Final Answer

Option C

MCQ 56

What is the greatest length that can measure exactly both 4.2 m and 5.6 m?

- A. 0.7 m B. 1.0 m
C. 1.4 m D. 2.8 m

Solution

$$4.2 \text{ m} = 420 \text{ cm}$$

$$5.6 \text{ m} = 560 \text{ cm}$$

$$\text{HCF}(420, 560) = 140 \text{ cm}$$

$$= 1.4 \text{ m}$$

Final Answer

Option C

MCQ 57

84 boys and 126 girls are to be divided into the greatest possible number of equal groups, with each group having the same number of boys and the same number of girls. How many groups?

- A. 21 B. 28
C. 42 D. 63

Solution

$$\text{Groups} = \text{HCF}(84, 126)$$

$$84 = 2^2 \cdot 3 \cdot 7$$

$$126 = 2 \cdot 3^2 \cdot 7$$

$$\text{HCF} = 2 \cdot 3 \cdot 7 = 42$$

Final Answer

Option C

MCQ 58

Three lights flash every 8, 12, and 18 seconds. If they flash together now, after how many seconds will they next flash together?

- A. 36 B. 48
C. 72 D. 144

Solution

$$8 = 2^3$$

$$12 = 2^2 \cdot 3$$

$$18 = 2 \cdot 3^2$$

$$\text{LCM} = 2^3 \cdot 3^2 = 72$$

Final Answer

Option C

MCQ 59

Find the greatest number that divides 215 and 335, leaving remainder 5 each time.

- A. 15 B. 20
C. 30 D. 60

Solution

$$215 - 5 = 210$$

$$335 - 5 = 330$$

$$\text{HCF}(210, 330) = 30$$

Final Answer

Option C

MCQ 60

Find the smallest four-digit number divisible by 12, 15, 18.

- A. 1020 B. 1080
C. 1140 D. 1260

Solution

$$\text{LCM}(12, 15, 18) = 180$$

$$1000 \div 180 = 5 \text{ remainder } 100$$

$$180 \times 6 = 1080$$

$$1080$$

Final Answer

Option B

MCQ 61

Find the remainder when 47 is divided by 5.

- A. 1 B. 2
C. 3 D. 4

Solution

$$47 = 5(9) + 2$$

$$\text{Remainder} = 2$$

Final Answer

Option B

MCQ 62

Find the remainder when 1234 is divided by 9.

- A. 0 B. 1
C. 2 D. 4

Solution

$$1 + 2 + 3 + 4 = 10$$

$$10 = 9(1) + 1$$

$$\text{Remainder} = 1$$

Final Answer

Option B

MCQ 63

Find the remainder when 2^{10} is divided by 7.

- A. 1 B. 2
C. 3 D. 4

Solution

$$2^3 = 8 \equiv 1 \pmod{7}$$

$$2^9 = (2^3)^3 \equiv 1$$

$$2^{10} \equiv 2 \pmod{7}$$

Final Answer

Option B

MCQ 64

Find the remainder when 3^5 is divided by 7.

- A. 3 B. 4
C. 5 D. 6

Solution

$$3^5 = 243$$

$$243 = 7(34) + 5$$

$$\text{Remainder} = 5$$

Final Answer

Option C

MCQ 65

A number leaves remainder 3 when divided by 7. What remainder will the number plus 11 leave when divided by 7?

- A. 0 B. 1
C. 3 D. 4

Solution

$$n \equiv 3 \pmod{7}$$

$$n + 11 \equiv 3 + 11 = 14 \equiv 0 \pmod{7}$$

Final Answer

Option A

MCQ 66

If n leaves remainder 2 when divided by 5, what remainder does $3n + 4$ leave when divided by 5?

- A. 0 B. 1
C. 2 D. 4

Solution

$$n \equiv 2 \pmod{5}$$

$$3n + 4 \equiv 3(2) + 4 = 10$$

$$10 \equiv 0 \pmod{5}$$

Final Answer

Option A

MCQ 67

Find the remainder when 9999 is divided by 11.

- A. 0 B. 1
C. 9 D. 10

Solution

$$9999 = 11 \times 909$$

$$\text{Remainder} = 0$$

Final Answer

Option A

MCQ 68

Find the remainder when $1 + 2 + \dots + 20$ is divided by 7.

- A. 0 B. 1
C. 2 D. 3

Solution

$$S = \frac{20(21)}{2} = 210$$

$$210 = 7(30)$$

$$\text{Remainder} = 0$$

Final Answer

Option A

MCQ 69

Find the remainder when $10^5 + 1$ is divided by 9.

- A. 0 B. 1
C. 2 D. 8

Solution

$$10 \equiv 1 \pmod{9}$$

$$10^5 + 1 \equiv 1^5 + 1 = 2 \pmod{9}$$

Final Answer

Option C

MCQ 70

What least positive number must be added to 568 to make it divisible by 9?

- A. 1 B. 7
C. 8 D. 9

Solution

$$5 + 6 + 8 = 19$$

$$19 = 9(2) + 1$$

$$\text{Current remainder} = 1$$

$$9 - 1 = 8$$

Final Answer

Option C

MCQ 71Find the unit digit of 7^{23} .

- A. 1 B. 3
C. 7 D. 9

Solution

$$7^1, 7^2, 7^3, 7^4 \Rightarrow 7, 9, 3, 1$$

$$23 \equiv 3 \pmod{4}$$

$$\text{Unit digit} = 3$$

Final Answer

Option B

MCQ 72Find the unit digit of 3^{100} .

- A. 1 B. 3
C. 7 D. 9

Solution

3, 9, 7, 1 repeats every 4

$$100 \equiv 0 \pmod{4}$$

$$\text{Unit digit} = 1$$

Final Answer

Option A

MCQ 73Find the unit digit of 2^{35} .

- A. 2 B. 4
C. 6 D. 8

Solution

2, 4, 8, 6 repeats every 4

$$35 \equiv 3 \pmod{4}$$

$$\text{Unit digit} = 8$$

Final Answer

Option D

MCQ 74Find the unit digit of 9^{47} .

- A. 1 B. 3
C. 7 D. 9

Solution

9, 1 repeats every 2

47 is odd

$$\text{Unit digit} = 9$$

Final Answer

Option D

MCQ 75Find the unit digit of 6^{2026} .

- A. 2 B. 4
C. 6 D. 8

Solution 6^n ends in 6 for every $n \geq 1$

6

Final Answer

Option C

MCQ 76Find the unit digit of 8^{12} .

- A. 2 B. 4
C. 6 D. 8

Solution

8, 4, 2, 6 repeats every 4

$$12 \equiv 0 \pmod{4}$$

$$\text{Unit digit} = 6$$

Final Answer

Option C

MCQ 77Find the unit digit of 4^{17} .

- A. 4 B. 6
C. 8 D. 2

Solution $4, 6$ repeats every 2

17 is odd

Unit digit = 4

Final Answer

Option A

MCQ 78Find the unit digit of 17^{19} .

- A. 1 B. 3
C. 7 D. 9

Solution 17^{19} has the same unit digit as 7^{19}

$$19 \equiv 3 \pmod{4}$$

 7^3 ends in 3**Final Answer**

Option B

MCQ 79Find the unit digit of $3^{10} \times 7^5$.

- A. 1 B. 3
C. 7 D. 9

Solution 3^{10} ends in 9 7^5 ends in 7

$$9 \times 7 = 63$$

Unit digit = 3

Final Answer

Option B

MCQ 80Find the unit digit of $2^{20} + 3^{20}$.

- A. 5 B. 6
C. 7 D. 8

Solution 2^{20} ends in 6 3^{20} ends in 1

$$6 + 1 = 7$$

Final Answer

Option C

MCQ 81

The sum of five consecutive integers is 85. Find the middle integer.

- A. 15 B. 16
C. 17 D. 18

Solution

$$(n-2) + (n-1) + n + (n+1) + (n+2) = 85$$

$$5n = 85$$

$$n = 17$$

Final Answer

Option C

MCQ 82

The sum of three consecutive even integers is 42. Find the largest.

- A. 12 B. 14
C. 16 D. 18

Solution

$$(n-2) + n + (n+2) = 42$$

$$3n = 42$$

$$n = 14$$

$$\text{Largest} = 14 + 2 = 16$$

Final Answer

Option C

MCQ 83

The product of two consecutive positive integers is 56. Find their sum.

- A. 13 B. 15
C. 17 D. 19

Solution

$$7 \times 8 = 56$$

$$7 + 8 = 15$$

Final Answer

Option B

MCQ 84

The sum of four consecutive integers is 54. Find the smallest.

- A. 10 B. 11
C. 12 D. 13

Solution

$$n + (n + 1) + (n + 2) + (n + 3) = 54$$

$$4n + 6 = 54$$

$$4n = 48$$

$$n = 12$$

Final Answer

Option C

MCQ 85

The sum of three consecutive odd integers is 69. Find the largest.

- A. 21 B. 23
C. 25 D. 27

Solution

$$(n - 2) + n + (n + 2) = 69$$

$$3n = 69$$

$$n = 23$$

$$\text{Largest} = 25$$

Final Answer

Option C

MCQ 86

If n is odd, which is always odd?

- A. $n+1$ B. n^2
C. $2n$ D. $n-1$

Solution

$$n = 2k + 1$$

$$n^2 = (2k + 1)^2 = 4k^2 + 4k + 1$$

$$= 2(2k^2 + 2k) + 1$$

$$\therefore n^2 \text{ is odd}$$

Final Answer

Option B

MCQ 87

What is the sum of an even integer and an odd integer?

- A. Always even B. Always odd
C. Always prime D. Always composite

Solution

$$2a + (2b + 1) = 2(a + b) + 1$$

$$\therefore \text{sum is odd}$$

Final Answer

Option B

MCQ 88

The product of any three consecutive integers is always divisible by:

- A. 4 only B. 5
C. 6 D. 8

Solution

$$n(n + 1)(n + 2)$$

One of three is divisible by 3

At least one is even

$$\therefore 2 \times 3 = 6 \text{ divides the product}$$

Final Answer

Option C

MCQ 89

The sum of the first n odd positive integers is 225. Find n .

- A. 12 B. 15
C. 18 D. 25

Solution

$$1 + 3 + \dots + (2n - 1) = n^2$$

$$n^2 = 225$$

$$n = 15$$

Final Answer

Option B

MCQ 90

The sum of the first n natural numbers is 210. Find n .

- A. 18 B. 19
C. 20 D. 21

Solution

$$\frac{n(n+1)}{2} = 210$$

$$n(n+1) = 420$$

$$20 \times 21 = 420$$

$$n = 20$$

Final Answer

Option C

MCQ 91

Find the smallest positive number divisible by 2, 3, 4, 5, 6.

- A. 30 B. 40
C. 60 D. 120

Solution

$$\text{LCM}(2, 3, 4, 5, 6)$$

$$= 2^2 \cdot 3 \cdot 5$$

$$= 60$$

Final Answer

Option C

MCQ 92

Find the greatest three-digit number divisible by 17.

- A. 969 B. 986
C. 989 D. 999

Solution

$$999 \div 17 = 58 \text{ remainder } 13$$

$$17 \times 58 = 986$$

$$17 \times 59 = 1003 > 999$$

Final Answer

Option B

MCQ 93

Find the least three-digit number that leaves remainder 1 when divided by 2, 3, 4, 5.

- A. 101 B. 121
C. 181 D. 241

Solution

$$\text{LCM}(2, 3, 4, 5) = 60$$

$$N = 60k + 1$$

$$60(1) + 1 = 61 < 100$$

$$60(2) + 1 = 121$$

Final Answer

Option B

MCQ 94

How many trailing zeros are there in 25!?

- A. 4 B. 5
C. 6 D. 7

Solution

$$\left\lfloor \frac{25}{5} \right\rfloor + \left\lfloor \frac{25}{25} \right\rfloor$$

$$= 5 + 1 = 6$$

Final Answer

Option C

MCQ 95

What is the greatest power of 2 that divides 48?

- A. 4 B. 8
C. 16 D. 32

Solution

$$48 = 16 \times 3$$

$$= 2^4 \times 3$$

$$\text{Greatest power of } 2 = 2^4 = 16$$

Final Answer

Option C

MCQ 96

Find the sum of all positive factors of 12.

- A. 24 B. 26
C. 28 D. 30

Solution

Factors: 1, 2, 3, 4, 6, 12

$$1 + 2 + 3 + 4 + 6 + 12 = 28$$

Final Answer

Option C

MCQ 97

What is the smallest prime number greater than 50?

- A. 51 B. 52
C. 53 D. 55

Solution

$$51 = 3 \times 17$$

$$52 = 4 \times 13$$

53 is prime

53

Final Answer

Option C

MCQ 98

Find the digital root of 98765.

- A. 7 B. 8
C. 9 D. 10

Solution

$$9 + 8 + 7 + 6 + 5 = 35$$

$$3 + 5 = 8$$

Digital root = 8

Final Answer

Option B

MCQ 99

When an integer is divided by 13, the quotient is 7 and the remainder is 5. Find the integer.

- A. 91 B. 96
C. 98 D. 104

Solution

$$N = 13(7) + 5$$

$$= 91 + 5 = 96$$

Final Answer

Option B

MCQ 100

Find the smallest positive integer that is divisible by 8 and 12, and leaves remainder 1 when divided by 5.

- A. 24 B. 48
C. 72 D. 96

Solution

$$\text{LCM}(8, 12) = 24$$

Multiples: 24, 48, 72, 96, ...

$$96 = 5(19) + 1$$

$$\therefore 96$$

Final Answer

Option D

Number System - Rapid Revision Grid

Prime / composite

2 is the only even prime.

A prime has exactly two positive factors; a composite number has more than two.

Factor count

$$N = p^a q^b \implies \tau(N) = (a+1)(b+1)$$

Consecutive-number shortcuts For five consecutive integers, the average equals the middle integer. For three consecutive even/odd integers, the middle integer is also the average.

Remainder adjustment If N leaves remainder r on division by d , then the least amount to add for exact divisibility is

$$d - r$$

provided $r \neq 0$.

Trailing zeros in factorials

$$Z(n!) = \left\lfloor \frac{n}{5} \right\rfloor + \left\lfloor \frac{n}{25} \right\rfloor + \left\lfloor \frac{n}{125} \right\rfloor + \dots$$

Exam-speed rule Before long division, first test divisibility, factorization, cyclic unit digits, or modular reduction. In one-paper MCQs, this often removes most arithmetic.