NUMBER SYSTEM

CHITKARA UNIVERSITY

Introduction to Number Theory:-

In number theory, the numbers are classified into different types, such as natural numbers, whole numbers, complex numbers, and so on. The sub-classifications of the natural number are given below:

- Odd Numbers – 1, 3, 5, 7, 9, 11, 13, 15, 17, 19…..
- Even Numbers – 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22 . . .
- Square Numbers – 4, 9, 16, 25, 36, 49, 64, 81,100 . . .
- Cube Numbers – 8, 27, 64, 125, 216, 343, 512 . . .
- Prime Numbers – 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47,53, 59, 61 . . .
- Composite Numbers – 4, 6, 8, 9, 10, 12, 14, 15, 16,18, 20, 21, 22, 24 . . .
- 1 (modulo 4) Numbers – 1, 5, 9, 13, 17, 21, 25, . . .
- 3 (modulo 4) Numbers – 3, 7, 11, 15, 19, 23, 27, . . .
- Triangular Numbers – 3, 6, 10, 15, 21, 28, 36, 45,. . .
- Perfect Numbers – 6, 28, 496, 8128, . . .
- Fibonacci Numbers -1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89. . .

BODMAS:-

BODMAS - Order of Simplification of an expression of numbers

B	=	Bracket
O	=	Of
D	=	Division
M	=	Multiplication
A	=	Addition
S	=	Subtraction

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 1. What is the unit digit of the product of $207 \times 781 \times 39 \times 94$?

(a) 9

(b) 1

(c) 7

(d) 2

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 1. What is the unit digit of the product of $207 \times 781 \times 39 \times 94$?

(a) 9

(b) 1

(c) 7

(d) 2

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 2. What will come in the place of unit digit in the value of $(7^{35})\times(3^{71})\times(11^{55})$?

(a) 0

(b) 3

(c) 1

(d) 6

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 2. What will come in the place of unit digit in the value of $(7^{35})\times(3^{71})\times(11^{55})$?

(a) 0

(b) 3

(c) 1

(d) 6

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 3. Find the number of zeros at the end of the product of 1 × 2 × 3 × 4 × 5 × 6 ..... × 99 × 100 :

(a) 22

(b) 24

(c) 26

(d) 28

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 3. Find the number of zeros at the end of the product of 1 × 2 × 3 × 4 × 5 × 6 ..... × 99 × 100 :

(a) 22

(b) 24

(c) 26

(d) 28

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 4. Find the number of zeros at the end of the product of 2 × 4 × 6 × 8 × 10 × ..... × 98 × 100 :

(a) 10

(b) 11

(c) 12

(d) 15

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 4. Find the number of zeros at the end of the product of 2 × 4 × 6 × 8 × 10 × ..... × 98 × 100 :

(a) 10

(b) 11

(c) 12

(d) 15

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 5. Find the number of zeros at the end of the product of 10 × 20 × 30 × ..... × 2000 :

(a) 222

(b) 249

(c) 226

(d) 220

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 5. Find the number of zeros at the end of the product of 10 × 20 × 30 × ..... × 2000 :

(a) 222

(b) 249

(c) 226

(d) 220

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 6. Find the number of factors of 100 :

(a) 8

(b) 9

(c) 10

(d) 12

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 6. Find the number of factors of 100 :

(a) 8

(b) 9

(c) 10

(d) 12

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 7. Find the sum of the factors of 100 :

(a) 127

(b) 217

(c) 219

(d) 189

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 7. Find the sum of the factors of 100 :

(a) 127

(b) 217

(c) 219

(d) 189

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 8. Find the average of the factors of 60 :

(a) 12

(b) 13

(c) 14

(d) 16

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 8. Find the average of the factors of 60 :

(a) 12

(b) 13

(c) 14

(d) 16

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 9. Find the product of the factors of 100 :

(a) 10^9

(b) $10^{9/2}$

(c) $10^{11/2}$

(d) 10^{19}

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 9. Find the product of the factors of 100 :

(a) 10^9

(b) $10^{9/2}$

(c) $10^{11/2}$

(d) 10^{19}

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 10. How many 3-digit numbers are completely divisible by 6?

(a) 149

(b) 150

(c) 151

(d) 166

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 10. How many 3-digit numbers are completely divisible by 6?

(a) 149

(b) 150

(c) 151

(d) 166

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 11. Which one of the following numbers is completely divisible by 99?

(a) 3572

(b) 13595

(c) 913464

(d) 114345

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 11. Which one of the following numbers is completely divisible by 99?

(a) 3572

(b) 13595

(c) 913464

(d) 114345

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 12. The sum of digits of a two-digit number is 7. If the digits of the number are interchanged, the number so formed is greater than the original number by 27. Find the original number :

(a) 29

(b) 25

(c) 79

(d) 32

(e) None of these

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 12. The sum of digits of a two-digit number is 7. If the digits of the number are interchanged, the number so formed is greater than the original number by 27. Find the original number :

(a) 29

(b) 25

(c) 79

(d) 32

(e) None of these

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 13. If the sum of, the digits of a two-digit number and the number formed by reversing its digit is 99, what is the sum of the digits of the original number?

(a) 9

(b) 8

(c) 11

(d) 10

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 13. If the sum of, the digits of a two-digit number and the number formed by reversing its digit is 99, what is the sum of the digits of the original number?

(a) 9

(b) 8

(c) 11

(d) 10

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 14. What is the digit in the blank space of the number 34*7 so that the number is divisible by 11?

(a) 3

(b) 6

(c) 7

(d) 8

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 14. What is the digit in the blank space of the number 34*7 so that the number is divisible by 11?

(a) 3

(b) 6

(c) 7

(d) 8

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 15. If the sum of, the digits of a two-digit number and the number formed by reversing its digits is N, Which one of the following numbers will completely divide N?

(a) 9

(b) 7

(c) 11

(d) 18

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 15. If the sum of, the digits of a two-digit number and the number formed by reversing its digits is N, Which one of the following numbers will completely divide N?

(a) 9

(b) 7

(c) 11

(d) 18

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 16. A 4-digit number is formed by repeating a 2-digit number such as 2525, 3232, etc. Any number of this form is always divisible by :

(a) Smallest two-digit prime number

(b) 7

(c) 13

(d) smallest three-digit prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 16. A 4-digit number is formed by repeating a 2-digit number such as 2525, 3232, etc. Any number of this form is always divisible by :

(a) Smallest two-digit prime number

(b) 7

(c) 13

(d) smallest three-digit prime number

NUMBER SYSTEM

Q 17. Find the sum of the first fifty natural numbers :

(a) 1144

(b) 1275

(c) 1325

(d) 1075

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 17. Find the sum of the first fifty natural numbers :

(a) 1144

(b) 1275

(c) 1325

(d) 1075

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 18. Find the value of $51 + 52 + 53 + 54 + \cdots \ldots \ldots \ldots + 100$:

(a) 2443

(b) 1754

(c) 2673

(d) 3775

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 18. Find the value of $51 + 52 + 53 + 54 + \cdots \ldots \ldots \ldots + 100$:

(a) 2443

(b) 1754

(c) 2673

(d) 3775

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 19. Find the sum of the squares of the first 30 natural numbers :

(a) 9455

(b) 8372

(c) 7849

(d) 6973

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 19. Find the sum of the squares of the first 30 natural numbers :

(a) 9455

(b) 8372

(c) 7849

(d) 6973

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 20. Find the value of $2^2 + 4^2 + 6^2 + 8^2 + \cdots + 20^2$:

(a) 2870

(b) 1321

(c) 1540

(d) 1550

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 20. Find the value of $2^2 + 4^2 + 6^2 + 8^2 + \cdots + 20^2$:

(a) 2870

(b) 1321

(c) 1540

(d) 1550

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 21. Find the value of $1^2 + 3^2 + 5^2 + 7^2 + \ldots\ldots\ldots\ldots + 19^2$:

(a) 1335

(b) 1330

(c) 1332

(d) 1334

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 21. Find the value of $1^2 + 3^2 + 5^2 + 7^2 + \ldots\ldots\ldots\ldots + 19^2$:

(a) 1335

(b) 1330

(c) 1332

(d) 1334

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 22. If $1^2 + 2^2 + 3^2 + 4^2 + \ldots\ldots\ldots + 10^2 = 385$, find the value of $2^2 + 4^2 + 6^2 + \ldots\ldots + 20^2$:

(a) 1250

(b) 1540

(c) 1190

(d) 1375

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 22. If $1^2 + 2^2 + 3^2 + 4^2 + \ldots\ldots\ldots + 10^2 = 385$, find the value of $2^2 + 4^2 + 6^2 + \ldots\ldots + 20^2$:

(a) 1250

(b) 1540

(c) 1190

(d) 1375

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 23. Find the value of $11^2 + 12^2 + 13^2 + 14^2 + \ldots\ldots\ldots\ldots + 20^2$:

(a) 2870

(b) 2485

(c) 2670

(d) 2495

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 23. Find the value of $11^2 + 12^2 + 13^2 + 14^2 + \ldots\ldots\ldots\ldots + 20^2$:

(a) 2870

(b) 2485

(c) 2670

(d) 2495

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 24. Find the value of $1^3 + 3^3 + 5^3 + 7^3 + \ldots\ldots\ldots\ldots + 29^3$:

(a) 36100

(b) 101025

(c) 32500

(d) 44700

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 24. Find the value of $1^3 + 3^3 + 5^3 + 7^3 + \ldots\ldots\ldots\ldots + 29^3$:

(a) 36100

(b) 101025

(c) 32500

(d) 44700

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 25. If $1^3 + 2^3 + 3^3 + 4^3 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots + 10^3 = 3025$, find the value of $2^3 + 4^3 + 6^3 + \ldots + 20^3$:

(a) 2875

(b) 24200

(c) 3080

(d) 39400

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 25. If $1^3 + 2^3 + 3^3 + 4^3 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots + 10^3 = 3025$, find the value of $2^3 + 4^3 + 6^3 + \ldots + 20^3$:

(a) 2875

(b) 24200

(c) 3080

(d) 39400

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 26. Find the sum of all even numbers up to 100 :

(a) 2295

(b) 2425

(c) 2495

(d) 2550

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 26. Find the sum of all even numbers up to 100 :

(a) 2295

(b) 2425

(c) 2495

(d) 2550

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 27. Find the sum of the all-odd number up to 100 :

(a) 2100

(b) 2500

(c) 2300

(d) 2200

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 27. Find the sum of the all-odd number up to 100 :

(a) 2100

(b) 2500

(c) 2300

(d) 2200

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 28. Find the number of prime factors of $6^{20} \times 11^{11} \times 21^{21}$:

(a) 83

(b) 93

(c) 103

(d) 113

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 28. Find the number of prime factors of $6^{20} \times 11^{11} \times 21^{21}$:

(a) 83

(b) 93

(c) 103

(d) 113

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 29. ($x^n - a^n$) is completely divisible by (x - a), when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 29. ($x^n - a^n$) is completely divisible by (x - a), when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 30. $(x^n - a^n)$ is completely divisible by $(x + a)$, when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 30. $(x^n - a^n)$ is completely divisible by $(x + a)$, when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 31. $(x^n + a^n)$ is completely divisible by $(x + a)$, when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 31. $(x^n + a^n)$ is completely divisible by $(x + a)$, when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 32. $7^{12} - 4^{12}$ is exactly divisibly by which of the following?

(a) 36

(b) 35

(c) 34

(d) 33

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 32. $7^{12} - 4^{12}$ is exactly divisibly by which of the following?

(a) 36

(b) 35

(c) 34

(d) 33

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 33. Which of the following number will completely divide $(49^{15} - 1)$?

(a) 8

(b) 14

(c) 51

(d) 50

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 33. Which of the following number will completely divide (49^{15} –1)?

(a) 8

(b) 14

(c) 51

(d) 50

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 34. Which one of the following numbers will completely divide ($4^{61} + 4^{62} + 4^{63} + 4^{64}$)?

(a) 3

(b) 9

(c) 11

(d) 17

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 34. Which one of the following numbers will completely divide ($4^{61} + 4^{62} + 4^{63} + 4^{64}$)?

(a) 3

(b) 9

(c) 11

(d) 17

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 35. Which one of the following is the common factor of $(47^{43} + 43^{43})$ and $(47^{47} + 43^{47})$?

(a) 47 – 43

(b) 47 + 43

(c) $47^{43} + 43^{43}$

(d) $47^{47} + 43^{47}$

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 35. Which one of the following is the common factor of $(47^{43} + 43^{43})$ and $(47^{47} + 43^{47})$?

(a) 47 – 43

(b) 47 + 43

(c) $47^{43} + 43^{43}$

(d) $47^{47} + 43^{47}$

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 36. If n is a natural number, (n^3 - n) will always be divisible by:

(a) 6 only

(b) 6 and 12 both

(c) 12 only

(d) by 18 only

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 36. If n is a natural number, $(n^3 - n)$ will always be divisible by:

(a) 6 only

(b) 6 and 12 both

(c) 12 only

(d) by 18 only

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 37. Which one of the following is a prime number?

(a) 161

(b) 221

(c) 373

(d) 437

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 37. Which one of the following is a prime number?

(a) 161

(b) 221

(c) 373

(d) 437

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 38. Find the largest four-digit number which is divisible by 88 :

(a) 9944

(b) 9768

(c) 9988

(d) 8888

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 38. Find the largest four-digit number which is divisible by 88 :

(a) 9944

(b) 9768

(c) 9988

(d) 8888

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 39. If a number is divided by 111, the remainder is 31. What will be the remainder if it is divided by 37?

(a) 31

(b) 32

(c) 33

(d) 0

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 39. If a number is divided by 111, the remainder is 31. What will be the remainder if it is divided by 37?

(a) 31

(b) 32

(c) 33

(d) 0

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 40. On multiplying a number by 7, the product is a number made of only the digit 3. The smallest such number is:

(a) 47619

(b) 47719

(c) 48619

(d) 47649

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 40. On multiplying a number by 7, the product is a number made of only the digit 3. The smallest such number is:

(a) 47619

(b) 47719

(c) 48619

(d) 47649

CHITKARA UNIVERSITY

THANK YOU

CHITKARA UNIVERSITY