NUMBERS

1. If $(2^{32} + 1)$ is completely divisible by a whole number, which of the following numbers is completely divisible by this number?
   a. $(2^{96} + 1)$ b. (7×2^{23}) c. $(2^{16} - 1)$ d. $(2^{16} + 1)$

2. What is the unit digit in $(6324)^{1797} \times (615)^{316} \times (341)^{476}$?
   a. 1 b. 2 c. 4 d. 0

3. If n is a natural number, then $(6n^2 + 6n)$ is always divisible by:
   a. Both 6 and 12 b. 6 only c. 12 only d. None of these

4. When $(67^{67} + 67)$ is divided by 68, the remainder is
   a. 0 b. 22 c. 33 d. 66

5. If x and y are positive integers such that (3x + 7y) is a multiple of 11, then which of the followings are divisible by 11?
   a. 9x + 4y b. x + y + 4 c. 4x - 9y d. 4x + 6y

6. Which one of the following can't be the square of natural number ?
   a. 128242 b. 128881 c. 130321 d. 131044

7. What is the remainder when 17^{200} is divided by 18 ?
   a. 3 b. 2 c. 1 d. 4

8. In a division sum, the remainder is 0 when a student mistook the divisor by 12 instead of 21 and obtained 35 as quotient. What is the correct quotient ?
   a. 25 b. 20 c. 15 d. 10

9. $1000^{10} \div 10^{28} = ?$
   a. 10 b. 100 c. 1000 d. 10000

10. Which of the following numbers will completely divide $(49^{15} - 1)$?
    a. 6 b. 7 c. 8 d. 9

11. Which one of the following cannot be the square of natural number ?
    a. 15186125824 b. 49873162329 c. 14936506225 d. 60625273287

12. What is the digit in the unit place of the number represented by $(7^{95} - 3^{58})$?
    a. 4 b. 3 c. 2 d. 1

13. If a whole number n is divided by 4, we will get 3 as remainder. What will be the remainder if 2n is divided by 4 ?
    a. 4 b. 3 c. 2 d. 1

14. The difference of two numbers is 1365. On dividing the larger number by the smaller, 6 is obtained as quotient and 15 as remainder. What is the smaller number ?
    a. 310 b. 330 c. 250 d. 270

15. 996ab is divisible by 80. What is (a + b) ?

a. 3 b. 5 c. 6 d. 8

16. The product of 4 consecutive even numbers is always divisible by:

a. 600 b. 768 c. 864 d. 384

17. Find the remainder when 289 is divided by 89?

a. 1 b. 2 c. 87 d. 88

18. In a meet, persons from five different places have assembled in Bangalore High School. From the five places the persons come to represent are 42,60,210,90 and84. What is the minimum number of rooms that would be required to accommodate so that each room has the same number of occupants and occupants are all from the same places?

a. 44 b. 62 c. 81 d. 96

19. When writing numbers from 1 to 10,000, how many times is the digit 9 written?

a. 3200 b. 3600 c. 4000 d. 4200

20. How many natural numbers below 660 are divisible by 5 and 11 but not by 3?

a. 8 b. 9 c. 10 d. 11

21. For what value of 'n' will the remainder of 351n and 352n be the same when divided by 7?

a. 2 b. 3 c. 6 d. 4

22. What is the largest 4 digit number exactly divisible by 88?

a. 9944 b. 9999 c. 9988 d. 9900

24. How many of the following numbers are divisible by 132?
264, 396, 462, 792, 968, 2178, 5184, 6336

a. 4 b. 3 c. 6 d. 8

25. How many even prime numbers are there less than 50?

a. 1 b. 15 c. 2 d. 16

26. How many different factors does 48 have, excluding 1 and 48?

a. 12 b. 4 c. 8 d. 10

27. How many divisors does 7200 have?

a. 20 b. 4 c. 54 d. 32

28. Find the sum of the factors of 124.

a. 250 b. 224 c. 214 d.204

29. Find the number of divisors of 15000 that are perfect squares.

a. 6 b. 10 c. 8 d. 100

30. If both 11^2 and 3^3 are factors of the number a * 4^3 * 6^2 * 13^{11}, then what is the smallest possible value of a?

a. 121 b. 3267 c. 363 d. 33

31. Find the number of divisors of 19!

a. 29320 b. 29376 c. 2900 d. 3000

32. A number N^2 has 15 factors. How many factors can N have?

a. 5 or 7 factors b. 6 or 8 factors c. 4 or 6 factors d. 9 or 8 factors