**GS FOUNDATION**
**BATCH FOR CSE (2023-24)**
**ACE CSAT - WORKSHEET 11**
**ARITHMETIC II**

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1. What will be the remainder when $3^{436}$ is divided by 10?

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

2. The sum of the digits of a two-digit number is 1/7 of the number. The units digit is 4 less than the tens digit. If number obtained by reversing the digits is divided by 7, what will be the reminder?

A. 1
B. 4
C. 5
D. 6

3. A positive integer when divided by 425 gives a remainder 45. When the same number is divided by 17, what will be the remainder?

A. 7
B. 11
C. 13
D. 16

4. What is the remainder when $37^{123423}$ is divided by 4?

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

5. What is the remainder when $(23123 + 131212 + 1223421)$ $is\ divided\ by$ 7?

A. 0
B. 1
C. 2
D. 5

6. What is the remainder when $(23 \times 32 \times 5331 \times 125)$ is divided by 13?

A. 1
B. 5
C. 8
D. 12

7. If n is a natural number, consider following statements

1. $6n^2 + 6n$ will always be divisible by 6
2. $6n^2 + 6n$ will always be divisible by 12
3. $6n^2 + 6n$ will always be divisible by 18

Which of the statements above are correct?

A. 1 and 2 only
B. 1 and 3 only
C. 2 and 3 only
D. 1, 2 and 3

8. What is the value of $107 \times 107 + 93 \times 93$?

A. 19573
B. 19876
C. 20098
D. 21284

9. A fly starts to travel from point P to Q. It then comes back to P. In next round, fly travels to midpoint of PQ, which is R and comes back to P. In the next step, fly travels to midpoint of PR and returns back. In each subsequent round, fly reduces its target point to go and come back by half. Fly makes trips indefinitely. What is the total distance travelled by the fly is distance between P and Q is 1?

A. 2
B. 4
C. 8
D. Fly will travel infinite distance as it keeps on travelling indefinitely

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

A. 149
B. 150
C. 151
D. 166

11. What is the value of $\frac{(376+843)^2+(376-843)^2}{376\times376+843\times843}$?

A. 0
B. 1
C. 2
D. 756

12. What is the $10^{th}$ term of an Arithmetic progression with initial term 3 and square of a smallest prime number as common difference?

A. 12
B. 21
C. 39
D. 84

13. Which of the following is common factor of $(43^{43} + 47^{43})\ and\ (43^{47} + 47^{47})$?

A. 85
B. 90
C. $(43^{43} + 47^{43})$
D. None of the above

14. What least number must be subtracted from 13601, so that the remainder is divisible by 87?

A. 23
B. 31
C. 29
D. 37

15. 476XY0 is divisible by both 3 and 11. Which of the following digits could be there in place of X and Y?

A. 8 and 5
B. 2 and 7
C. 1 and 3
D. 0 and 1

16. On dividing 2272 as well as 875 by 3-digit number N, we get the same remainder. The sum of the digits of N is

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

17. If N = $71 + 72 + 73 + \cdots + 99; What\ is\ N?$

A. 1736
B. 2465
C. 3345
D. 2284

18. Which of the following will completely divide $(3^{31} + 3^{32} + 3^{33} + 3^{34})$

A. 11
B. 16
C. 30
D. 50

19. The sum of how many terms of the series 6 + 12 + 18 + 24 + ... is 1800?

A. 18
B. 20
C. 22
D. 24

20. What is the value of $3^{13} - 2 \times (3 + 3^2 + 3^3 + \cdots + 3^{12})$

A. $-2$
B. 3
C. $-3$
D. 2

21. Which of the following is not a square of a natural number?

A. 276676
B. 113569
C. 396412
D. 622521

**Solutions:**

1. A
2. C
3. B
4. B
5. C
6. D
7. A
8. C
9. B
10. B
11. C
12. C
13. B
14. C
15. A
16. A
17. B
18. C
19. B
20. B
21. C