1. Quantity A: $0.\overline{12}$ Quantity B: $0.1\overline{21}$

2. In an organization total number of employees is a 3 digit prime number then which of the following could be the ratio of graduate and under-graduate employees?
(A)100:89 (B)100:121
(C)100:223 (D) 100:99

3. If 4N is divisible by 32 but not by 64 then which of the following could be divisible by 48?(Mark all the correct answers)
(A)6N (B)20N
(C)100N (D)3N (E)7N

4. Find the remainder
(I) $\frac{121\times122}{60}$ (II) $\frac{118\times117\times131}{60}$
(III) $\frac{121\times118\times124}{60}$ (IV) $\frac{82^{75}}{27}$
(V) $\frac{84^{55}}{17}$ (VI) $\frac{31^{123}+33^{86}}{16}$
(VII) $\frac{35^{62}}{11}$ (VIII) $\frac{4^{56}}{15}$

5. If x is a positive even integer and y is a positive odd integer, which of the following statements CANNOT be true? (Indicate all such statements)
(A) x + y is divisible by 3
(B) 3x + 2y is divisible by 4
(C)2x+ 3y is divisible by 6

6. When N is divisible by 12 remainder is 3.Then which of the following are definitely divisible by 3?(Mark all the correct answers)
(A) 5N+726 (B)13N+79
(C)22N+891 (D) $20N^2+561$

7. Find the remainder when (N+M) is divided by 10 if N is divisible by 8 and
N = 2358993a & M = 6930

8. If (180!+1) < P < (180! + 180), P is natural number. How many prime values P can take?
(A)4 (B) 7
(C) more than 20 (D) None

9. If n is an odd integer, which of the following must be an even integer?
(A) $\frac{n}{2}$ (B) $5n + 3$
(C) $3n$ (D) $\frac{n}{4}$ (E) $\sqrt{n}$

10. Find the highest power of 7 in 178!?

11. If $\frac{57!}{10^x}$=Integer , then find maximum value of x?

12. If x and y are perfect squares, then which of the following is not necessarily a perfect square?
(A) x^2 (B) xy
(C) 4x (D) x + y (E) x^5

13. If the integer x is divisible by 3 but not by 2, then which one of the following expressions is NEVER an integer?
(A) $\frac{(x+1)}{2}$ (B) $\frac{x}{7}$
(C) $\frac{x^2}{3}$ (D) $\frac{x^3}{3}$ (E) $\frac{x}{24}$

14. When a natural number N is divided by 40 remainder is 26 then

Quantity A	Quantity B
Remainder when N is divided by 7	4

15. Find the minimum natural number which should be multiplied to 120 so that it becomes perfect cube?

16. For any natural numbers a, b, & c : (a+b) (b+c) (c+a) is
(A)Always even
(B) Always odd
(C) Depends on numbers

17. Smallest n! Such that it is divisible by 242?

18. N is the smallest perfect square which is divisible by 6, 8 & 15. Find N?

19. From all-natural numbers from 2 to 2500, first all the perfect squares are erased, then all the perfect cubes are erased, then all the perfect 4th powers and so on, in successive rounds. How many rounds are there such that at least one number is erased in the round.

20. How many multiples of 9 are between 100 & 450?

21.

Quantity A	Quantity B
2^{100}	3^{60}

22. The remainder when the positive integer m is divided by n is r. What is the remainder when 2m is divided by 2n ?
(A) r (B) 2r
(C) 2n (D) m – nr (E) 2(m – nr)

23. What is the value of 3!(7 – 2)! ?

24. If $2^{5^3}=4^x$, then find x?

25. When 1000 is added to 459x251 and the resulting number is divided by 11, the remainder is 8. Find x.
(A)3 (B) 5
(C) 7 (D) 8 (E) 9

Numbers-1

1. C	2. D	3. A,B,C	4. 2,6,52,1,16,0,4,1	5. C
6. A,C,D	7. 6	8. 0	9. B	10.28
11.13	12.D	13.E	14.D	15.225
16.A	17.22!	18.3600	19. 5	20.39
21. A	22.B	23.720	24.125/2	25.D