Single Correct Answer Type

1. How many four digit numbers can be made by using the digits 1, 2, 3, 7, 8, 9 when reception of digits allowed and when repetition of digits not allowed respectively are
(A) 360,1296 (B) 1296,360 (C) 300,400 (D) 1200,300

2. The number of straight lines that can be drawn through any two points out of 10 points, of which 7 are collinear.
(A) 25 (B) 30 (C) 35 (D) 45

3. 7 boys be seated at a round table. X is the number of ways in which two particular boys are next to each other, y is number of ways in which they are separated. Then X + Y is
(A) 500 (B) 600 (C) 700 (D) 720

4. The number of way of distributing 8 identical balls in 3 distinct boxes so that none of the boxes is empty is
(A) ${}^{8}C_{3}$ (B) 21 (C) 3^{8} (D) 5

5. The number of all three digits even numbers such that if 3 is one of the digits, then next digit is 5, is
(A) 359 (B) 360 (C) 365 (D) 380

6. A five digit number divisible by 3 is to be formed using the numerals 0, 1, 2, 3, 4, 5 with out repetition. The total number of ways this can be done is
(A) 216 (B) 600 (C) 240 (D) 3125

7. The number of three digit numbers of the form xyz such that x < y and $z \leq y$ is
(A) 276 (B) 285 (C) 240 (D) 244

8. The number of numbers lying in (0, 1), whose all the digits after decimal are non-zero and distinct is
(A) $\sum_{i=1}^{10} {}^{10}p_{1}$ (B) $9 \times 9!$ (C) 9! (D) $\sum_{i=1}^{9} {}^{9}p_{1}$

9. Let A = {1, 2, 3, ….., 22} and B is a subset of having exactly 11 elements. The sum of elements of all possible subsets B is
(A) $253 \times {}^{21}C_{10}$ (B) $252 \times {}^{21}C_{11}$ (C) $230 \times {}^{21}C_{10}$ (D) $253 \times {}^{21}C_{9}$

10. Ten different letters of an alphabet are given. Words with five letters are formed from these given letters. Then the number of words which have at least one letter repeated is
(A) 69760 (B) 30240 (C) 99748 (D) 32050

11. A box contains two white balls, three black balls and four red balls. In how many ways can three balls be drawn form the box if at least one black ball is to be included in the draw
(A) 64 (B) 45 (C) 46 (D) 40

12. The sum of the divisors of $2^{5}.3^{4}.5^{2}$ is
(A) $3^{5}.7^{1}.11^{2}$ (B) $3^{2}.7^{1}.11^{2}.31$ (C) 3.7.11.31 (D) $3^{2}.7^{3}.11^{2}.31$

13. Number of ways in which 5 boys and 4 girls can be arranged on a circular table such that no two girls sit together and two particular boys are always together.
(A) 276 (B) 288 (C) 296 (D) 304

14. The number of subsets of the set $A = \{a_1, a_2, ..., a_n\}$ which contains an even number of elements is

(A) 2^n (B) $2^n - 1$ (C) 2^{n-2} (D) 2^{n-1}

15. In an election there districts are to be canvassed by 2, 3 & 5 men respectively. If there are 10 men volunteer, the number of ways they can be allotted to the different districts is

(A) $\frac{10!}{2!3!5!}$ (B) $\frac{10!}{2!5!}$ (C) $\frac{10!}{(2!)^2 5!}$ (D) $\frac{10!}{(2!)^2 3!5!}$

16. The kindergarten teacher has 25 kinds in her class. She takes 5 of them at a time, to zoological garden as often as she can, without taking the same 5 kinds more than once. Then the number of visits, the teacher makes to the garden exceeds that of a kid by

(A) 25 c 5 (B) ${}^{24}C_5$ (C) ${}^{25}C_4 - {}^{24}C_5$ (D) ${}^{24}C_4$

17. There are 12 different balls in an urn. Number of ways in which 3 balls can be drawn from the urn, four times in succession without replacement is equal to

(A) $\frac{12!}{(3!)^4, 4!}$ (B)12! /(4!)^4 (C) $\frac{12!}{4^2.9^2}$ (D) $\frac{12!}{(4!)^3}$

18. The continued product, 2.6.10.14…… to n factors is equal to

(A) ${}^{2n}C_n$ (B) ${}^{2n}P_n$

(C) n(n+1)(n+2)…(n+n) (D) ${}^{n}C_n$

19. There are 3 sections in a question paper each containing 5 questions. A candidate has to solve only 5 questions, choosing atleast one question from each section. The number of ways in which he can make choices is

(A) ${}^{15}C_5 - 3^{10}C_5 - 3.{}^5C_5$ (B) ${}^{15}C_5 - 3.{}^{10}C_5 + 3.{}^5C_5$

(C) ${}^{15}C_5 + 3.{}^{10}C_5 - 3.{}^5C_5$ (D) $18({}^5C_1.{}^5C_3 + {}^5C_2.{}^5C_3)$

20. Number of ways in which 3 numbers in A.P. can be selected from 1, 2, 3, …..n is

(A) $\left(\frac{n-1}{2}\right)^2$, if n is even (B) $\frac{n(n-2)}{4}$, if n is odd

(C) $\frac{(n-1)^2}{4}$, if n is even (D) $\frac{n(n-2)}{4}$, if n is even

Numerical based

21. The number of positive integral solution of the equation $x_1x_2x_3x_4x_5 = 1050$ is 375n when $n \in N$.
Then n = ____

22. If $a_n = \sum_{r=0}^{n} \frac{1}{{}^nC_r}$ then $a_n = \sum_{r=0}^{n} \frac{r}{{}^nC_r} = \frac{n}{K}a_n$ then K = _____

23. If x satisfies the inequation ${}^{10}C_{x+1} > 2\left({}^{10}C_x\right)$ then the least positive integral value of x is

24. If the number of integral solution of the equation 2x + 2y + z = 20 where $x \geq 0, y \geq 0$ and $z \geq 0$ is 11k then k =

25. A seven digit number made up of all distinct digits 8, 7, 6, 4, 2, x, y is divisible by 3. The possible number of order pairs (x,y) is

KEY

1.	B	**2.**	A	**3.**	D	**4.**	B	**5.**	C
6.	A	**7.**	A	**8.**	D	**9.**	A	**10.**	A
11.	A	**12.**	B	**13.**	B	**14.**	D	**15.**	A
16.	B	**17.**	C	**18.**	B	**19.**	B	**20.**	D
21.	5	**22.**	2	**23.**	8	**24.**	6	**25.**	8

✻ *Wish You all the Best* ✻