Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

Class: XI
Subject: Math's
Topic: Permutation & Combination
No. of Questions: 20

1. If ${}^{n}C_4$, ${}^{n}C_5$ and ${}^{n}C_6$ are in A.P., then the value of n can be

A. 6
B. 7
C. 8
D. 9

2. 2. If ${}^{n}C_{r-1} = 36$, ${}^{n}C_r = 84$ and ${}^{n}C_{r+1} = 126$, then the value of r is equal to

A. 1
B. 2
C. 3
D. 4

3. The number of words that can be formed by using the letters of the word MATHEMATICS that start as well as end with T is

A. 80720
B. 90720
C. 20860
D. 37528

4. 4. m men and w women are to be seated in a row so that no two women sit together. If m > w, then the number of ways in which they can be seated is

A. $\frac{m!(m+1)!}{(m-w+1)!}$
B. ${}^{m}C_{m-w}(m-w)!$
C. ${}^{m+w}C_{m}\ (m-w)!$
D. none of these

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

5. The number of positive integers < 1,00,000 which contain exactly one 2, one 5 and one 7 in its decimal representation is

A. 2940
B. 7350
C. 2157
D. 1582

6. The sum S = $\frac{1}{9!}+\frac{1}{3!7!}+\frac{1}{5!5!}+\frac{1}{7!3!!}+\frac{1}{9!}$ equals

A. $\frac{2^9}{10!}$
B. $\frac{2^{10}}{8!}$
C. $\frac{2^{11}}{9!}$
D. $\frac{2^{10}}{7!}$

7. If $0 < r < s \leq n$ and ${}^nP_r = {}^nP_s$; then value of r + s is

A. 2n – 2
B. 2n – 1
C. 2
D. 1
E.

8. The value of $E = \frac{(1+17)\left(1+\frac{17}{2}\right)\left(1+\frac{17}{3}\right)\ldots\left(1+\frac{17}{19}\right)}{(1+19)\left(1+\frac{19}{2}\right)\left(1+\frac{19}{3}\right)\ldots\left(1+\frac{19}{17}\right)}$ is

A. 1
B. ${}^{36}C_{17}$
C. 2/19
D. ${}^{36}C_1$

9. If [y] denote the greatest integer $\leq$ y, and $2\left[\frac{x}{8}\right]^2 + 3\left[\frac{x}{8}\right] = 20,$ then x lies in the smallest interval [a, b) where b – a is equal to

A. 6
B. 5
C. 4
D. 8

10. Let T_n denote the number of triangles which can be formed by using the vertices of a regular polygon of n sides. If $T_{n+1} - T_n = 21$, then n equals

A. 5
B. 7
C. 6
D. 4

11. The number of rational numbers lying in the interval (2015, 2016) all whose digits after the decimal point are non-zero and are in decreasing order is

A. $\sum_{i=1}^{9} {}^{9}P_i$
B. $\sum_{i=1}^{10} {}^{9}P_i$
C. $2^9 - 1$
D. $2^{10} - 1$

12. 12. The number of positive integral solution of the equation $x_1\, x_2\, x_3\, x_4\, x_5 = 1050$ is

A. 1800
B. 1600
C. 1400
D. None of these

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

13. The number of positive integers n such that 2^n divides n! is

A. exactly 1
B. exactly 2
C. infinite
D. none of these

14. The value of $^{50}C_4 + \sum_{r=1}^{6} {}^{56-r}C_3$ is

A. $^{56}C_3$
B. $^{56}C_4$
C. $^{55}C_4$
D. $^{55}C_3$

15. The sum of the factors of 9! which are odd and are of the form 3m + 2, where m is a natural number is

A. 40
B. 45
C. 51
D. 54

16. The number of ordered pairs (m, n), m, n $\in$ {1, 2, …, 100} such that $7^m + 7^n$ is divisible by 5 is

A. 1250
B. 2000
C. 2500
D. 5000

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

17. The number of ways of arranging p numbers out of 1, 2, 3, …, q so that maximum is q – 2 and minimum is 2 (repetition of number is allowed) such that maximum and minimum both occur exactly once, (p > 5, q > 3) is

A. ${}^{p-3}C_{q-2}$
B. ${}^{p}C_{2}(q-3)^{q-1}$
C. ${}^{p}C_{2} \times {}^{q}C_{3}$
D. $p(p-1)(q-5)^{p-2}$

18. The number of integers x, y, z, w such that x + y + z + w = 20 and x, y, z, w $\geq$ – 1, is

A. ${}^{24}C_3$
B. ${}^{25}C_3$
C. ${}^{26}C_3$
D. ${}^{27}C_3$

19. There are three piles of identical yellow, black and green balls and each pile contains at least 20 balls. The number of ways of selecting 20 balls if the number of black balls to be selected is twice the number of yellow balls, is

A. 6
B. 7
C. 8
D. 9

20. The exponent of 7 in ${}^{100}C_{50}$ is

A. 0
B. 2
C. 4
D. None of these

21. How many words with or without meaning can be formed using all the letters of the word EQUATION' at a time so that vowels and consonants occur together

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

22. From a class of 25 students 10 are to be chosen for an excursion party. There are 3 students who decide that either all of them will join or none of them will join. In how many ways can excursion party be chosen?

23. Find the number of ways of selecting 9 balls from 6 red balls, 5 white balls and 5 blue balls if each selection consists of 3 balls of each colour.

24. Find the number of 3 digit even number that can be made using the digits 1, 2, 3, 4, 5, 6, 7, if no digit is repeated ?

25. Prove that the product r of consecutive positive integer is divisible by $\lfloor r$