**DPP**
DAILY PRACTICE PROBLEMS

**Class : XIth** **Subject :Maths**
**Date :** **DPP No. :7**

# Topic :-Binomial Theorem

1. The coefficient of $a^5b^6c^7$ in the expansion of $(bc+ca+ab)^9$ is

   a) 100 b) 120 c) 720 d) 1260

2. In the polynomial $(x-1)(x-2)(x-3)...(x-100)$. The coefficient of $x^{99}$is

   a) 5050 b) $-5050$ c) 100 d) 99

3. Let $n$ be an odd integer. If $\sin n\theta = \sum_{r=0}^{n} b_r \sin^r \theta$ for every value of θ, then

   a) $b_0 = 1, b_1 = 3$ b) $b_0 = 0, b_1 = n$
   c) $b_0 = -1, b_1 = n$ d) $b_0 = 0, b_1 = n^2 - 3n + 3$

4. In the expansion of $\left(x+\sqrt{x^2-1}\right)^6 + \left(x-\sqrt{x^2-1}\right)^6$, the number of terms, is

   a) 7 b) 14 c) 6 d) 4

5. If $n$ is odd, then $C_0^2 - C_1^2 + C_2^2 - C_3^2 + ... + (-1)^n C_n^2$ is equal to

   a) 0 b) 1 c) $\infty$ d) $\frac{n!}{\left(\frac{n}{2}\right)^2!}$

6. If $(1-x+x^2)^n = a_0 + a_1x + .....a_{2n}x^{2n}$ then the value of $a_0 + a_2 + a_4 + .... + a_{2n}$ is

   a) $3^n + \frac{1}{2}$ b) $3^n - \frac{1}{2}$ c) $\frac{3^n - 1}{2}$ d) $\frac{3^n + 1}{2}$

7. ${}^{15}C_0 \cdot {}^5C_5 + {}^{15}C_1 \cdot {}^5C_4 + {}^{15}C_2 \cdot {}^5C_3 + {}^{15}C_3 \cdot {}^5C_2 + {}^{15}C_4 \cdot {}^5C_1$ is equal to

a) $2^{20}-2^5$ b) $\frac{20!}{5!15!}-1$ c) $\frac{20!}{5!15!}-1$ d) $\frac{20!}{5!15!}-\frac{15!}{5!10!}$

8. In the expansion of the following expression $1+(1+x)+(1+x)^2+\ldots+(1+x)^n$, the coefficient of $x^4(0\le k\le n)$ is

a) ${}^{n+1}C_{k+1}$ b) ${}^{n}C_{k}$ c) ${}^{n}C_{n-k-1}$ d) None of these

9. In the binomial expansion of $(a-b)^n, n\ge 5$, the sum of 5th and 6th terms is zero, then $\frac{a}{b}$ equals

a) $\frac{5}{n-4}$ b) $\frac{6}{n-5}$ c) $\frac{n-5}{6}$ d) $\frac{n-4}{5}$

10. The middle term in the expansion of $\left(1-\frac{1}{x}\right)^n(1-x)^n$, is

a) ${}^{2n}C_n$ b) $-{}^{2n}C_n$ c) $-{}^{2n}C_{n-1}$ d) None of these

11. In the expansion of $\left(x^3-\frac{1}{x^2}\right)^{15}$, the constant term, is

a) ${}^{15}C_6$ b) 0 c) $-{}^{15}C_6$ d) 1

12. The number of terms in the expansion of $(a+b+c)^{10}$ is

a) 11 b) 21 c) 55 d) 66

13. The expansion of $\frac{1}{(4-3x)^{1/2}}$ by Only One Correct Option will be valid, if

a) $x<1$
b) $|x|<1$
c) $-\frac{2}{\sqrt{3}}<x<\frac{2}{\sqrt{3}}$
d) None of these

14. The largest term in the expansion of $(3+2x)^{50}$, where $x=\frac{1}{5}$ is

a) 5th b) 3rd c) 7th d) 6th

15. If $(1+ax)^n=1+8x+24x^2+\ldots$, then the values of $a$ and $n$ are

a) 2, 4 b) 2, 3 c) 3, 6 d) 1, 2

16. The value of $(0.99)^{15}$ is

a) 0.8432 b) 0.8601 c) 0.8502 d) None of these

17. $\frac{1}{1!(n-1)!}+\frac{1}{3!(n-3)!}+\frac{1}{5!(n-5)!}+\ldots$ is equal to

a) $\frac{2^n}{n!}$ b) $\frac{2^{n-1}}{n!}$ c) 0 d) None of these

18. If $x$ is so small that $x^3$ and higher powers of $x$ may be neglected, then $\frac{(1+x)^{3/2}-\left(1+\frac{1}{2}x\right)^3}{(1-x)^{1/2}}$ may be approximated as

a) $\frac{x}{2}-\frac{3}{8}x^2$ b) $-\frac{3}{8}x^2$ c) $3x+\frac{3}{8}x^2$ d) $1-\frac{3}{8}x^2$

19. The number of terms in the expansion of $(2x+3y-4z)^n$, is

a) $n+1$ b) $n+3$ c) $\frac{(n+1)(n+2)}{2}$ d) None of these

20. If $m,n,r$ are positive integers such that $r<m,n$, then ${}^mC_r+{}^mC_{r-1}\,{}^nC_1+{}^mC_{r-2}\,{}^nC_2+\ldots+{}^mC_1\,{}^nC_{r-1}+{}^nC_r$ equals

a) $\left({}^nC_r\right)^2$ b) ${}^{m+n}C_r$ c) ${}^{m+n}C_r+{}^mC_r+{}^nC_r$ d) None of these