DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject :Maths**
Date : **DPP No. :10**

Topic :-Binomial Theorem

1. $\sum_{k=0}^{10} {}^{20}C_k$ is equal to

   a) $2^{19} + \frac{1}{2}\,{}^{20}C_{10}$ b) 2^{19} c) ${}^{20}C_{10}$ d) None of these

2. The approximate value of $(7.995)^{1/3}$ correct to four decimal places is

   a) 1.9995 b) 1.9996 c) 1.9990 d) 1.9991

3. If the binomial coefficients of 2nd , 3rd and 4th terms in the expansion of

   $\left\{\sqrt{2^{\log_{10}(10-3^x)}} + \sqrt[5]{2^{(x-2)\log_{10}3}}\right\}^m$ are in A.P and the 6th term is 21, then the value(s) of x, is

   (are)

   a) 1, 3 b) 0, 2 c) 4 d) -1

4. If ${}^nC_{12} = {}^nC_6$, then ${}^nC_2$ is equal to

   a) 72 b) 153 c) 306 d) 2556

5. In the expansion of $\left(x - \frac{1}{x}\right)^6$, the coefficient of x^0 is

   a) 20 b) -20 c) 30 d) -30

6. The term independent of x in the expansion of $\left(x^3 + \frac{2}{x^2}\right)^{15}$ is

   a) T_7 b) T_8 c) T_9 d) T_{10}

7. If the $(r+1)$th term in the expansion of $\left(\frac{a^{1/3}}{b^{1/6}} + \frac{b^{1/2}}{a^{1/6}}\right)^{21}$ has equal exponents of both a and b, then value of r is

   a) 8 b) 9 c) 10 d) 11

8. The coefficient of $1/x$ in the expansion of $\left(\frac{1}{x}+1\right)^n(1+x)^n$ is

a) ${}^{2n}C_n$ b) ${}^{2n}C_{n-1}$ c) ${}^{2n}C_1$ d) ${}^{n}C_{n-1}$

9. Let $[x]$ denote the greatest integer less than or equal to x. If $x=(\sqrt{3}+1)^5$, then $[x]$ is equal to

a) 75 b) 50 c) 76 d) 152

10. The value of $2\ C_0+\frac{2^2}{2}C_1+\frac{2^3}{3}C_2+\frac{2^4}{4}C_3+\ldots+\frac{2^{11}}{11}C_{10}$, is

a) $\frac{3^{11}-1}{11}$ b) $\frac{2^{11}-1}{11}$ c) $\frac{11^3-1}{11}$ d) $\frac{11^2-1}{11}$

11. The sum of coefficients of the expansion $\left(\frac{1}{x}+2x\right)^n$ in 6561. The coefficient of term independent of x is

a) 16 ${}^8C_4$ b) ${}^8C_4$ c) ${}^8C_5$ d) None of these

12. In the expansion of $(1+x)^{30}$, the sum of the coefficients of odd powers of x is

a) 2^{30} b) 2^{31} c) 0 d) 2^{29}

13. The 6th term in the expansion of $\left(2x^2-\frac{1}{3x^2}\right)^{10}$ is

a) $\frac{4580}{17}$ b) $-\frac{896}{27}$ c) $\frac{5580}{17}$ d) None of these

14. ${}^{47}C_4+\sum_{r=1}^{5}{}^{52-r}C_3$ is equal to

a) ${}^{45}C_6$ b) ${}^{52}C_5$ c) ${}^{52}C_4$ d) None of these

15. The coefficient of x^n in the expansion of $(1-2\,x+3\,x^2-4\,x^3+\ldots)^{-n}$, is

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

16. The term independent of x in the expansion of $(1+x)^n(1+1/x)^n$, is
a) $C_0^2+2\ C_1^2+3\cdot C_2^2+\ldots+(n+1)C_n^2$
b) $(C_0+C_1+\ldots+C_n)^2$
c) $C_0^2+C_1^2+\ldots+C_n^2$
d) None of these

17. If A and B are coefficients of x^r and x^{n-r} respectively in the expansion of $(1+x)^n$, then
a) $A=B$ b) $A+B=0$ c) $A=r\,B$ d) $A=nB$

18. If $x = \dfrac{\begin{bmatrix} 729 + 6(2)(243) + 15(4)(81) \\ +20(8)(27) + 15(16)(9) \\ +6(32)3 + 64 \end{bmatrix}}{1 + 4(4) + 6(16) + 4(64) + 256}$, then $\sqrt{x} - \dfrac{1}{\sqrt{x}}$ isequal to

a) 0.2 b) 4.8 c) 1.02 d) 5.2

19. If the coefficients of pth, $(p+1)$th and $(p+2)$th terms in the expansion of $(1+x)^n$ are in AP, then
a) $n^2 - 2np + 4p^2 = 0$
b) $n^2 - n(4p+1) + 4p^2 - 2 = 0$
c) $n^2 - n(4p+1) + 4p^2 = 0$
d) None of the above

20. The sum of the rational terms in the expansion of $(\sqrt{2} + 3^{1/5})^{10}$ is

a) 41 b) 32 c) 18 d) 9