BINOMIAL THEOREM

GENERAL TERM AND MIDDLE TERM

EXERCISE

Q1. If x^{2r} occurs in $\left(x+\frac{2}{x^2}\right)^n$, then $n-2r$ must be of the form

(a)3k-1 (b) 3k (c) 3k+1 (d) 3k+2

Q2. The coefficient of x^{53} in the following expansion $\sum_{m=0}^{100} {}^{100}C_m \left(x-3\right)^{100-m}.2^m$ is

(a)$^{100}C_{47}$ (b) $^{100}C_{53}$ (c) $^{-100}C_{53}$ (d) $^{-100}C_{100}$

Q3. The term independent of x in the expansion of $\left(\sqrt{\frac{x}{3}}+\frac{3}{2x^2}\right)^{10}$ will be

(a) $\frac{3}{2}$ (b) $\frac{5}{4}$ (c) $\frac{5}{2}$ (d) None of these

Q4. The coefficient of t^{24} in the expansion of $(1+t^2)^{12}(1+t^{12})(1+t^{24})$ is

(a) ${C_6}^{12}+2$ (b) ${C_5}^{12}$ (c) ${C_6}^{12}$ (d) ${C_7}^{12}$

Q5. In the expansion of $(x+\sqrt{x^2-1})^6+(x-\sqrt{x^2-1})^6$, the number of terms, is

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

Q6. In the binomial expansion of $(a-b)^n, n\geq 5$, the sum of 5^{th} and 6^{th} term is zero, then $\frac{a}{b}$ equal

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

Q7. The coefficient of x^n in the expansion of $\frac{(1+x)^2}{(1-x)^3}$, is

(a) n^2+2n+1 (b) $2n^2+n+1$

(c) $2n^2+2n+1$ (d) $n^2 2+2n+2$

Q8. 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

Q9. 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

Q10. If the expansion in power of x of the function $\frac{1}{(1-ax)(1-bx)}$ is

$a_0 + a_1x + a_2x^2 + a_3x^3 + \cdots$, then a_n is

(a) $\frac{a^n-b^n}{b-a}$ (b) $\frac{a^{n+1}-b^{n+1}}{b-a}$

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

ANSWER KEY

1. (b)

2. (c)

3. (d)

4. (a)

5. (d)

6. (d)

7. (c)

8. (a)

9. (c)

10. (c)