MATHEMATICS (ASSIGNMENT-10)

TOPIC- BINOMIAL THEOREM

1. If the coefficients of second, third and fourth terms in the expansion of $(1+x)^{2n}$ are in A.P., then

a) $2n^2+9n+7=0$ b) $2n^2-9n+7=0$ c) $2n^2-9n-7=0$ d) None of these

2. If the ratio of the 7^{th} term from the beginning to the seventh term from the end in the expansion of $\left(\sqrt[3]{2}+\frac{1}{\sqrt[3]{3}}\right)^x$ is $\frac{1}{6}$ then x, is

a) 9 b) 6, 15 c) 12, 9 d) None of these

3. The coefficient of x^5 in the expansion of $(1+x^2)^5(1+x)^4$, is

a) 30 b) 60 c) 40 d) None of these

4. If in the expansion of $\left(3x-\frac{2}{x^2}\right)^{15}$ rth term is independent of x, then value of r is

a) 6 b) 10 c) 9 d) 12

5. The total number of terms in the expansion of $(x+a)^{100}+(x-a)^{100}$ after simplification will be

a) 202 b) 51 c) 50 d) None of these

6. The constant term in the expansion of $(1+x)^{10}\left(1+\frac{1}{x}\right)^{12}$ is

a) ${}^{22}C_{10}$ b) 0 c) ${}^{22}C_{11}$ d) None of these

7. The greatest coefficient in the expansion of $(1+x)^{10}$, is

a) $\frac{10!}{5!6!}$ b) $\frac{10!}{(5!)^2}$ c) $\frac{10!}{5!7!}$ d) None of these

8. If the coefficient of $(2r+1)$th term and $(r+2)$th term in the expansion of $(1+x)^{43}$ are equal, then r is equal to

a) 12 b) 14 c) 16 d) 18

9. 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

10. The first four terms of the expansion of $\left(ax - \frac{1}{bx^2}\right)^5$ are-

(A) $a^5x^5 - 5\frac{a^4}{b}x^2 + 10\frac{a^3}{b^2x} - 10\frac{a^2}{b^3x^4}$ (B) $a^5x^5 + 5\frac{a^4}{b}x^2 - 10\frac{a^3}{b^2x} + 10\frac{a^2}{b^3x^4}$

(C) $a^5x^5 - 5\frac{a^4}{b}x^2 - 10\frac{a^3}{b^2x} - 10\frac{a^2}{b^3x^4}$ (D) $a^5x^5 + 5\frac{a^4}{b}x^2 + 10\frac{a^3}{b^2x} + 10\frac{a^2}{b^3x^4}$

11. The sixth term in the expansion of $\left(3x^2 - \frac{1}{2x}\right)^8$ is-

(A) $\frac{189}{4}x$ (B) $-\frac{189}{4}x$ (C) $\frac{189}{4}x^2$ (D) $\frac{189}{4}x^3$

12. If in the expansion of $(1+y)^n$, the coefficient of 5^{th}, 6^{th} and 7^{th} terms are in A.P., then n is equal to-

(A) 7, 11 (B) 7, 14 (C) 8, 16 (D) None of these

13. The sum of the coefficient of the terms of the expansion of polynomial $(1+x-3x^2)^{2143}$ is-

(A) 2^{2143} (B) 1 (C) –1 (D) 0

14. The middle term of the expansion $\left(x - \frac{2}{x}\right)^8$ is-

(A) 560 (B) –560 (C) 1120 (D) –1120

15. The term independent from x in the expansion of $\left(\sqrt{x} - \frac{3}{x^2}\right)^{10}$ is -

(A) 3240 (B) – 3240 (C) 405 (D) – 405

16. If in the expansion of $\left(x^3 - \frac{3}{x^2}\right)^{15}$ the r^{th} term is independent of x, then r equals-

(A) 8 (B) 9 (C) 10 (D) None of these

17. In the expansion of $(4 - 3x)^7$, the numerically greatest term at $x = 2/3$ is -

(A) T_4 (B) T_5 (C) T_3 (D) T_2

18. The tenth term in the expansion of $(1+x)^{-3}$ is -

(A) $-55x^9$ (B) $55x^9$ (C) $-66x^{10}$ (D) $66x^{10}$

19. If the coefficients of rth and $(r+1)^{th}$ terms in the expansion of $(3+7x)^{29}$ are equal, then r equals-

(A) 15 (B) 21 (C) 14 (D) None of these

20. If the fourth term in the expansion of $(px + 1/x)^n$ is 5/2 then the value of n and p are respectively-

(A) 6, 1/2 (B) 1/2, 6 (C) 3, 1 (D) 3, 1/2

ANSWER- KEY

1.	B	2.	A	3.	B	4.	A	5.	B	6.	A	7.	B
8.	B	9.	B	10.	A	11.	B	12.	B	13.	C	14.	C
15.	C	16.	C	17.	C	18.	A	19.	B	20.	A		