CHAPTER-8

BINOMIAL THEOREMS

01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	(1) The coefficient of y in the expansion of $(y^2 + c/y)^5$ is---- (a) $10c$ (b) $10c^2$ (c) $10c^3$ (d) None of these	1
2.	$(1.1)^{10000}$ is _____ 1000 (a)greater than (b) less than (c) equal to (d) None of these	1
3.	The fourth term in the expansion $(x - 2y)^{12}$is --------- (a) $-1670x^9y^3$ (b) $-7160x^9y^3$ (c) $-1760x^9y^3$ (d) $-1607x^9y^3$	1
4.	If n is a Positive integer then $(\sqrt{3}+1)^{2n+1} + (\sqrt{3}-1)^{2n+1}$ is ---------- (a) an even positive integer (b) a rational number (c) an odd positive integer (d) an irrational number.	1
5.	If the third term in the binomial expansion of $(1 + x)^m$ is $(-1/8)u^2$ then the rational value of m is (a) 2 (b) $1/2$ (c) 3 (d) 4	1
6.	The greatest coefficient in the expansion of $(1 + x)^{10}$ is (a) $10!/(5!)$ (b) $10!/(5!)^2$ (c) $10!/(5! \times 4!)^2$ (d) $10!/(5! \times 4!)$	1
7.	The coefficient of x^n in the expansion of $(1 - 2x + 3x^2 - 4x^3 + \cdots.)^{-n}$ is (a) $(2n)!/(n!)$ (b) $(2n)!/(n!)^2$ (c) $(2n)!\{2 \times (n!)^2\}$ (d) None of these	1
8.	The value of n in the term expansion of $(a + b)^n$ if the first three terms of the expansion are 729,7290 and 30375 respectively (a) 2 (b) 4 (c) 6 (d) 8	1
9.	If $\alpha\&\beta$ are the noots of the equation $x^2 - x + 1 = 0$ then the value of $\alpha^{2009} + \beta^{2009}$ is (a) 0 (b) 1 (c) -1 (d) 10	1
10.	The general term of the expansion $(a + b)^n$is (a) $T_{r+1} = {}^nC_r a^r \cdot b^r$ (b) $T_{r+1} = {}^nC_r a^r b^{n-r}$ (c) $T_{r+1} = {}^nC_r a^{n-r} b^{n-r}$ (d) $T_{r+1} = {}^nC_r a^{n-r} b^r$	1
11.	Which term will not be a function of x in the expansion of $\left(x^2 + \frac{3}{x^2}\right)^4$ $x \neq 0$	1

	a) 1st term b) 2nd term c) 3rd term d) 4th term	
12.	Which of the following is an incorrect statement? a) $(1.01)^{1000000} - 1 > 10000$ b) $(1.01)^{1000000} + 1 > 10000$ c) $(1.01)^{1000000} > 10000$ d) $(1.01)^{1000000} < 10001$	1
13.	The remainder when $9^{n+1} - 8n$, n$\in N$ is divided by 64 is a) 1 b) 9 c) 8 d) 10	1
14.	The sum of coefficients of $(a+b)^9$ is a) 256 b) 128 c) 32 d) 512	1
15.	The number of terms in the expansion of $[(1+2x^2)^4]^2$ are a) 5 b) 3 c) 8 d) 9	1
16.	If $(2+3y)^n = \sum_{r=0}^{n} n_{C_r}\, 2^a 3^b y^c$,then a) $a = b = c = r$ b) $a = b = r, c = n - r$ c) $a = n - r, b = c = r$ d) $a = b = n - r, c = r$	1
17.	Consider the statements: ASSERTION: The total number of terms in expansion of $(x^5 + y^5)^5$ is 6. REASON: The total number of terms in expansion of $(x+y)^n$ is n+1. a) Both A and R are true and R is the correct explanation of A b) Both A and R are true but R is not the correct explanation of A c) A is true but R is false d) A is false but R is true	1
18.	Up to how many terms in expansion, the approximate value of $(0.99)^5$ is 0.951 a) 1	1

	b) 4 c) 3 d) 2	
19.	The last two digits of $(102)^{100}$ are a) 01 b) 24 c) 02 d) 76	1
20.	Consider the statements: ASSERTION: The value of $\sum_{r=0}^{n} n_{C_r}\, 6^r = 6^n$ REASON: The value of $\sum_{r=0}^{n} n_{C_r}\, x^r = (1+x)^n$ a) Both A and R are true and R is the correct explanation of A b) Both A and R are true but R is not the correct explanation of A c) A is true but R is false d) A is false but R is true	1
21.	The value of C (8,0) +C (8,1) +C (8,2) +……. +C (8,8) is a)128 b)256 c) 512 d)1024	1
22.	Find the number of terms in the expansion of $(1-2x+x^2)^{20}$. a)20 b)21 c)41 d)44	1
23.	Find the number of terms in the expansion of $(a+b+c)^{50}$. a)50 b)51 c)101 d)1326	1
24.	The number of terms in the expansion $(a+b)^{10}+(a-b)^{10}$ is a)22 b)12 c)11 d)6	1
25.	Expanding $(x+\frac{1}{x})^6$ using binomial theorem, if we find the independent term in the expansion, it will be a)15 b)20 c)6 d) none	1
26.	If $\frac{T_2}{T_3}$ in the expansion of $(a+b)^n$ and $\frac{T_3}{T_4}$ in the expansion of $(a+b)^{n+3}$ are equal then n = a) 3 b)4 c)5 d)6	1
27.	The value of C(n,0)-C(n,1)+C(n,2)-……..+$(-1)^n$C(n,0) is a)2^n b)1 c)0 d)n	1
28.	What is the fifth term from the last in the expansion of $(a+b)^n$? a)C(n,3) b)C(n,4) c)C(n,5) d)C(n,n-5)	1
29.	Given,$2^{3n}-7n-1$ is divisible by n^2 , $n\epsilon N$.Then the value of n will be a) 2 b)4 c)7 d)8	1

30.	Who first gave the idea of binomial expansion in the form $(a+b)^n$? a)Isaac Newton b)Leibnitz c)Fibonacci d)Aryabhata	1
31.	The approximation of $(0.99)^5$ is (a) 0.951 (b) 0.195 (c)0.591 (d)0.519	1
32.	The total number of terms in the expansion of $(x+a)^{100}+(x-a)^{100}$ after simplification is (a)50 (b)202 (c) 51 (d)none of these	1
33.	The number of terms in the expansion of $(1+2x+x^2)^{20}$ is (a) 40 (b)41 (c) 42 (d)43	1
34.	If in the expansion of $(a+b)^n$ and $(a+b)^{n+3}$,the ratio of the coefficients of second and third terms ,and third and fourth terms are respectively are equal then n is (a) 3 (b) 4 (c) 5 (d) 6	1
35.	The coefficients of 2^{nd} ,3^{rd} and the 4^{th} terms in the expansion of $(1+x)^n$ are in A.P ,then the value of n is (a) 2 (b) 7 (c)11 (d)14	1
36.	The two successive terms in the expansion of $(1+x)^{24}$ whose coefficients are in the ratio 1:4 are (a) 3^{rd} and 4^{th} (b) 4^{th} and 5^{th} (c)5^{th} and 6^{th} (d)6^{th} and 7^{th}	1
37.	The number of terms in the expansion of $(1-3x+3x^2-x^3)^8$ is (a) 23 (b) 24 (c) 25 (d)26	1
38.	If the 17^{th} and 18^{th} terms in the expansion of $(2+a)^{50}$ are equal then 'a' is (a) 2 (b) 1 (c) 3 (d)4	1
39.	If the coefficient of x^2 in the expansion of $(1+x)^m$ is 6 then the value of 'm' is (a) 4 (b) 5 (c) 6 (d)7	1
40.	The coefficient of x^3 in the expansion of $(1+x+x^2)^3$ is (a) 6 (b) 7 (c) 8 (d)9	1
41.	The power of x occurring in the 7th term in the expansion of $\left(\frac{4x}{5}-\frac{8}{5x}\right)^9$ is (a) – 5 (b) 5 (c) – 3 (d) 3	1
42.	The number of terms in the expansion of $(a + b + c)^n$, where $n \in N$ is (A) $\frac{(n+1)(n+2)}{2}$ (B) n + 1 (C) n + 2 (D) (n + 1) n	1
43.	The coefficient of x^n in the expansion of $(1 + x)^{2n}$ and $(1 + x)^{2n-1}$ are in the ratio. (A) 1 : 2 (B) 1 : 3 (C) 3 : 1 (D) 2 : 1	1
44.	In the binomial expansion of $(a – b)^n$, $n \geq 5$, 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) $\frac{n-4}{5}$	1
45.	If $\binom{8}{r}-\binom{7}{3}=\binom{7}{2}$, then r is equal to (a) 3 (b) 4 (c) 8 (d) 6	1
46.	The greatest term in the expansion of $(1 + 3x)^{54}$,	1

	where x = 1/3 is (a) T_{28} (b) T_{25} (c) T_{26} (d) T_{24}	
47.	In the expansion of $(3x + 2)^4$, the coefficient of middle term is (a) 36 (b) 216 (c) 54 (d) 81	1
48.	$(\sqrt{3}+1)^4 + (\sqrt{3}-1)^4$ is equal to (a) a rational number (b) a negative integer (c) an irrational number (d) None of these	1
49.	The sum of the binomial coefficient in the expansion of $(1 + x)^7$ is (a) 256 (b) 64 (c) 128 (d) 0	1
50.	The total number of terms in the expansion of $(x + a)^{51} – (x – a)^{51}$ after simplification is (a) 102 (b) 25 (c) 26 (d) None of these	1
51.	The coefficient of y in the expansion of $(y^2+c/y)^5$ is (a)10 (b)10c (c)$10c^2$ (d)$10c^3$	1
52.	$(1.2)^{10000}$ is _____1000 (a)Greater than (b)Smaller than (c) equal to (d)None	1
53.	The 2nd term of $(x-2y)^{12}$ is (a)$-12x^{11}y2$ (b)$-24x^{11}y1$ (c)$-24x^{11}y^2$ (d)None	1
54.	If n is positive integer than $(\sqrt{2}+1)^{2n+1} + (\sqrt{2}+1)^{2n+1}$ is (a)Even positive integer (b)Irrational number (c)Odd positive integer (d)rational number	1
55.	Coefficient of x^5 in the expansion of $(x^2+3/x)^4$ is (a)-12 (b)6 (c)12 (d)None	1
56.	Coefficient of x^n in the expansion of $(1+x+x^2+…..)^{-n}$ is (a)2n (b)$(-1)^n$ (c)2^n (d)None	1
57.	The greatest coefficient in the expansion of $(1+x)^{10}$ is (a)(10!)/(4!) (b)(10!)/(5!)	1

	(c)$(10!)/(5!)^2$ (d)None	
58.	Calculate the value of ${}^8C_5$. (a) 76 (b) 41 (c) 110 (d) 56	1
59.	Determine the independent term of x^7 in the expansion of $(3x^2 + 4)^{12}$. (a) $210 * 4^6$ (b) 232 (c) 548* 4! (d) $220 * 3^6 * 4^6$	1
60.	The last digit of the number $((\sqrt{51}+ 1)^{51} – (\sqrt{51}-1)^{51}$ is _____ (a) 16 (b) 8 (c) 50 (d) 1	1

ANSWERS:

Q. NO	ANSWER	MARKS
1.	$(c)10c^3$	1
2.	(a)greater than	1
3.	(c) $-1760x^9y^3$	1
4.	(d) An irrational Number.	1
5.	(b) $\frac{1}{2}$	1
6.	(b) $10!/(5!)^2$	1
7.	(b) $(2n)!/(n!)^2$	1
8.	(c) 6	1
9.	(b) 1	1
10.	(d) $T_{r+1} = \quad {}^nC_r a^{n-r}b^r.$	1
11.	C	1
12.	D	1
13.	B	1
14.	D	1
15.	D	1
16.	C	1
17.	A	1
18.	C	1
19.	D	1
20.	D	1
21.	1.b) $2^8 = 256$	1
22.	2.c)Given expression= $(1-x)^{40}$.Therefore, number of terms=41	1
23.	3.d) $\frac{51\times52}{2} = 1326$	1
24.	4.d)6	1
25.	5.b)$(x+\frac{1}{x})^6 = x^6 + 6x^4 + 15x^2 + 20 + 15\frac{1}{x^2} + 6\frac{1}{x^4} + \frac{1}{x^6}$ So,independent term is 20	1
26.	c)5	1
27.	c)Given expression=$(1-1)^n = 0$	1
28.	b)C(n,4) as coefficients equidistant from the beginning and from the end are equal.	1
29.	c)7	1

30.	a)Isaac Newton	1
31.	a) 0.951	1
32.	c) 51	1
33.	b) 41	1
34.	c) 5	1
35.	(b) 7	1
36.	(c)5^{th} and 6^{th}	1
37.	c) 25	1
38.	(b) 1	1
39.	a) 4	1
40.	(b) 7	1
41.	C	1
42.	A	1
43.	D	1
44.	D	1
45.	A	1
46.	A	1
47.	B	1
48.	A	1
49.	C	1
50.	C	1
51.	**d**	1
52.	**a**	1
53.	**b**	1
54.	**b**	1
55.	**c**	1
56.	**b**	1
57.	**c**	1
58.	**d**	1
59.	**d**	1
60.	**b**	1