INDIAN SCHOOL AL WADI AL KABIR

Department of Mathematics

Class: XI **Worksheet: BINOMIAL TEOREM** **06th November 2024**

Multiple Choice Questions

1.	The coefficient of x^2 in the binomial expansion of $(2+x)^5$ is							
	A	40	**B**	80	**C**	10	**D**	60
2.	The value of $nC_0 - nC_1 + nC_2 - nC_3 + \cdots + (-1)^n nC_n$ is							
	A	2	**B**	-1	**C**	0	**D**	1
3.	The co efficient of x in $\left(x^2 + \frac{a}{x}\right)^5$ is 270 then the value of a is							
	A	3	**B**	1	**C**	0	**D**	-3
4.	The total number of terms in the binomial expansion of $(y+2)^{39} - (y-2)^{39}$ is							
	A	24	**B**	40	**C**	20	**D**	10
5.	The sum of co efficient of first and last terms in the expansion of $(1+x)^{2n}$ where n is a natural number is							
	A	2	**B**	1	**C**	4	**D**	0
6.	The co efficient of x^3y^2 in the expansion of $(x-3y)^5$ is							
	A	75	**B**	90	**C**	85	**D**	70
7.	The value of $\left(\sqrt{2}+1\right)^6 + \left(\sqrt{2}-1\right)^6$ is							
	A	188	**B**	186	**C**	180	**D**	198
8.	Write down which is true							
	A	$(1.1)^{40} > 40$	**B**	$(1.1)^{40} < 40$	**C**	$(1.1)^{40} = 40$	**D**	$(1.1)^{40} \leq 40$
9.	The fourth root of 1001 up to 7 decimal places is							
	A	10.0002949	**B**	10.0004299	**C**	10.0020499	**D**	10.0002499

DIRECTION: In the question number 11 and 12, a statement of assertion (A) is followed by statement of Reason (R). Choose the correct option:

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

10.	**Assertion:** The coefficients of the expansions are arranged in an array. This array is called Pascal's triangle **Reason:** There are 11 terms in the expansion of $(3x-4y)^{11}$
	Very Short Answer
11	Expand $(2m-1)^4$ using binomial expansion.
12	Find the co efficient of x and x^{-9} in the expansion $\left(2x^3-\frac{3}{x}\right)^7$.
13	Find the exact value of $(0.9)^3$ using binomial expansion.
14	Find the number of terms in the following expansions $(i)\ \left(\sqrt{x}+y^2\right)^{21}$ $(ii)\ (1-2x+x^2)^{32}$ $(iii)(8+x^3+12x+6x^2)^{10}$
15	Prove that 3^n-2n always leaves remainder 1 when it is divided by 4.
	Long Answer
16	Expand $(x^4-y)^5$ using binomial theorem
17	If the co efficient of three consecutive terms in the expansion of $(1+x)^n$ are in the ratio 1:7:42 then find the value of n.
18	Expand $\left(2x-\frac{1}{x^2}\right)^9$ and write down the constant term in the expansion.
19	Simplify $(x+y)^6+(x-y)^6$ and hence evaluate $\left(\sqrt{3}+1\right)^6+\left(\sqrt{3}-1\right)^6$
20	Find the value of $\left(a^2+\sqrt{a^2-1}\right)^4+\left(a^2-\sqrt{a^2-1}\right)^4$

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Answers								
	1	**B**	2	**C**	3	**A**	4	**C**
	5	**A**	6	**B**	7	**D**	8	**A**
	9	**D**	10	(c)				
11	$16m^4 - 32m^3 + 24m^2 - 8m + 1$							
12	$7C_2 \times 2^2(-3)^5$ and 0							
13	0.729							
14	(i) 22 (ii) 65 (iii) 31							
16	$x^{20} - 5x^{16}y + 10x^{12}y^2 - 10x^8y^3 + 5x^4y^4 - y^5$							
17	n=55							
18	-5376							
19	$2x^6 + 30x^4y^2 + 30x^2y^4 + 2y^6$ and 416							
20	$2[a^8 + 6a^6 - 5a^4 - 2a^2 + 1]$							

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