CE # 34	В	INOMIAL THEORM	MATHEMATICS
Set of value of r for	or which, ${}^{18}C_{r-2} + 2$ . ${}^{18}C_{r}$	$_{-1} + {}^{18}C_{r} \ge {}^{20}C_{13}$ contains	
(A) 4 element	(B) 5 elements	(C) 7 elements	(D) 10 elements
The number of val	ues of 'r' satisfying the	equation, ${}^{39}C_{3r-1} - {}^{39}C_{r^2}$	$={}^{39}C_{r^2-1}-{}^{39}C_{3r}$ is
(A) 1	(B) 2	(C) 3	(D) 4
In the expansion o	$f\left(\frac{x+1}{x^{2/3}-x^{1/3}+1}-\frac{x-x}{x-x}\right)$	$\left(\frac{1}{1/2}\right)^{10}$ , the term which do	oes not contain x is
(A) ${}^{10}C_0$	(B) ${}^{10}C_7$	(C) ${}^{10}C_4$	(D) none
If the second, third	and fourth terms in the	e expansion of $(a + b)^n$ a	are 135, 30 and 10/3 respectively, then
(A) $a = 3$	(B) $b = 1/3$	(C) $n = 5$	(D) all are correct
The coefficient of	the term independent of	x in the expansion of (1	+ x + 2x <sup>3</sup> ) $\left(\frac{3}{2}x^2 - \frac{1}{3x}\right)^9$ , is
(A) $\frac{1}{3}$	(B) $\frac{19}{54}$	(C) $\frac{17}{54}$	(D) $\frac{1}{4}$
The number of irra (A) 96	ational terms in the expa (B) 97	ansion of $(5^{1/6} + 2^{1/8})^{100}$ is (C) 98	s (D) 99
The sum of the rat	ional terms of $(2^{1/5} + \sqrt{3})$	$)^{20}$ is	
(A) 71	(B) 85	(C) 97	(D) None of these
The sum of the bin	nomial coefficients of	$2x + \frac{1}{x} \bigg]^n$ is equal to 256	. The constant term in the expansion is
(A) 1120	(B) 2110	(C) 1210	(D) none
In the expansion of	of $\left(3^{\frac{x}{4}} + 3^{\frac{5x}{4}}\right)^n$ the sum	n of the binomial coeffic	cients is 64 and the term with the greatest
binomial coefficier	nt exceeds the third term	by (n-1), then the value	e of x must be
(A) 1	(B) 2	(C) 0	(D) –1
Number of rational	l terms in the expansion	of $(\sqrt{2} + \sqrt[4]{3})^{100}$ is	
(A) 25	(B) 26	(C) 27	(D) 28
The term independ	ent of 'x' in the expansio	on of $\left(9x - \frac{1}{3\sqrt{x}}\right)^{18}$ , $x > 0$	0, is $\alpha$ times the corresponding binomial co-
efficient. Then ' $\alpha$ '	is		
	Set of value of r for (A) 4 element The number of value (A) 1 In the expansion of (A) ${}^{10}C_0$ If the second, third (A) $a = 3$ The coefficient of (A) $\frac{1}{3}$ The number of irrational (A) 96 The sum of the rate (A) 71 The sum of the bin (A) 1120 In the expansion of binomial coefficient (A) 1 Number of rational (A) 25	Set of value of r for which, ${}^{18}C_{r-2} + 2$ . ${}^{18}C_{r}$ (A) 4 element (B) 5 elements The number of values of 'r' satisfying the (A) 1 (B) 2 In the expansion of $\left(\frac{x+1}{x^{2/3}-x^{1/3}+1}-\frac{x-1}{x-x}\right)$ (A) ${}^{10}C_0$ (B) ${}^{10}C_7$ If the second, third and fourth terms in the (A) $a = 3$ (B) $b = 1/3$ The coefficient of the term independent of (A) $\frac{1}{3}$ (B) $\frac{19}{54}$ The number of irrational terms in the expansion (A) 96 (B) 97 The sum of the rational terms of $(2^{1/5} + \sqrt{3})$ (A) 71 (B) 85 The sum of the binomial coefficients of $\left[\frac{2}{4}\right]$ (A) 1120 (B) 2110 In the expansion of $\left(3^{-\frac{x}{4}}+3^{\frac{5x}{4}}\right)^n$ the sum binomial coefficient exceeds the third term (A) 1 (B) 2 Number of rational terms in the expansion (A) 25 (B) 26	Set of value of r for which, ${}^{18}C_{r-2} + 2$ . ${}^{18}C_{r-1} + {}^{18}C_r \ge {}^{20}C_{13}$ contains (A) 4 element (B) 5 elements (C) 7 elements The number of values of 'r' satisfying the equation, ${}^{39}C_{3r-1} - {}^{39}C_{r^2}$ (A) 1 (B) 2 (C) 3 In the expansion of $\left(\frac{x+1}{x^{2/3} - x^{1/3} + 1} - \frac{x-1}{x - x^{1/2}}\right)^{10}$ , the term which d (A) ${}^{10}C_0$ (B) ${}^{10}C_7$ (C) ${}^{10}C_4$ If the second, third and fourth terms in the expansion of (a + b) <sup>n</sup> at (A) a = 3 (B) b = 1/3 (C) n = 5 The coefficient of the term independent of x in the expansion of (1 (A) $\frac{1}{3}$ (B) $\frac{19}{54}$ (C) $\frac{17}{54}$ The number of irrational terms in the expansion of $(5^{1/6} + 2^{1/8})^{100}$ i (A) 96 (B) 97 (C) 98 The sum of the rational terms of $(2^{1/5} + \sqrt{3})^{20}$ is (A) 71 (B) 85 (C) 97 The sum of the binomial coefficients of $\left[2x + \frac{1}{x}\right]^n$ is equal to 256 (A) 1120 (B) 2110 (C) 1210 In the expansion of $\left(3^{\frac{x}{4}} + 3^{\frac{5x}{4}}\right)^n$ the sum of the binomial coefficient binomial coefficient exceeds the third term by (n-1), then the value (A) 1 (B) 2 (C) 0 Number of rational terms in the expansion of $\left(\sqrt{2} + \sqrt[4]{3}\right)^{100}$ is

12. 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  
13. The middle term in the expansion of  $(x^2-2x)^{10}$  is  
(A)  ${}^{10}C_4 x^{17}.2^4$  (B)  $-{}^{10}C_5 2^5x^{15}$  (C)  $-{}^{10}C_4 2^4.x^{17}$  (D) None of these  
14. The middle term in the expansion of  $(1-3x + 3x^2 - x^3)^6$  is  
(A)  ${}^{18}C_{10} x^{10}$  (B)  ${}^{18}C_9 (-x)^9$  (C)  ${}^{18}C_9 x^9$  (D) None of these  
15. The middle terms of the expansion  $\left(2a - \frac{a^2}{4}\right)^9$  is/ are  
(A)  $\frac{63}{4} a^{13}, -\frac{63}{32} a^{14}$  (B)  $\frac{63}{4} a^{14}, -\frac{63}{32} a^{13}$  (C)  $-\frac{63}{4} a^{13}, \frac{63}{32} a^{14}$  (D) None of these  
16. If  $6^{83} + 8^{83}$  is divided by 49, then the remainder is  
(A) 35 (B) 5 (C) 1 (D) 0  
17. The remainder, when  $(15^{23} + 23^{23})$  is divided by 19, is  
(A) 4 (B) 15 (C) 0 (D) 18  
18. Last three digits of the number N = 7^{100} - 3^{100} are  
(A) 100 (B) 300 (C) 500 (D) 000  
19. If  $(1 + x - 3x^2)^{2145} = a_0 + a_1x + a_2x^2 + \dots$  then  $a_0 - a_1 + a_2 - a_3 + \dots$  ends with  
(A) 1 (B) 3 (C) 7 (D) 9  
20. The coefficient of  $x^{49}$  in the expansion of  $(x - 1)\left(x - \frac{1}{2}\right)\left(x - \frac{1}{2^{29}}\right) \dots \left(x - \frac{1}{2^{49}}\right)$  is equal to  
(A)  $-2\left(1 - \frac{1}{2^{50}}\right)$  (B)  $2\left(1 - \frac{1}{2^{49}}\right)$ 

(C) 
$$2\left(1-\frac{1}{2^{50}}\right)$$
 (D)  $-2\left(1-\frac{1}{2^{49}}\right)$ 

## Answers

## RACE # 34

 1.
 (C)
 2.
 (B)
 3.
 (C)
 4.
 (D)
 5.
 (C)
 6.
 (B)
 7.
 (D)
 8.
 (A)
 9.
 (C)
 10.
 (B)

 11.
 (D)
 12.
 (B)
 13.
 (B)
 14.
 (B)
 15.
 (A)
 16.
 (A)
 17.
 (C)
 18.
 (D)
 19.
 (B)
 20.
 (A)