TOPICS COVERED

BINOMIAL THEOREM

1. The number of terms which are free from redical signs in the expansion of $\left(y^{1/5}+x^{1/10}\right)^{55}$ is
   (1) 5 (2) 6
   (3) 7 (4) none of these

2. The coefficient of x^5 in the expansion of $\left(2=x+3x^2\right)^6$ is
   (1) –4692 (2) 4692
   (3) 2346 (4) – 5052

3. If the ninth term in the expansion of $\left[3^{\log_2\sqrt{25^{x-1}+7}}+3^{-1/8\log_3\left(5^{x-1}+1\right)}\right]^{10}$ is equal to 180 and $x > 1$, then x equals
   (1) $\log_{10} 15$ (2) $\log_5 15$
   (3) $\log_e 15$ (4) none of these

4. If $\left(1+2x+3x^2\right)^{10}=a_0+a_1x+a_2x^2+....+a_{20}x^{20}$, then a_1 equals
   (1) 10 (2) 20
   (3) 210 (4) none of these

5. The number of integral terms in the expansion of $\left(5^{1/2}+7^{1/8}\right)^{1024}$ is
   (1) 128 (2) 129
   (3) 130 (4) 131

6. If the sum of the coefficients in the expansion of $(a+b)^n$ is 4096, then the greatest coefficient in the expansion is
   (1) 924 (2) 792
   (3) 1594 (4) none of these

7. The third term in the expansion of $\left(\frac{1}{x}+x^{\log_{10}x}\right)^5$, $x>1$ is 1000, then x equals
   (1) 100 (2) 10
   (3) 1 (4) $1/\sqrt{10}$

8. If the sum of the coefficients in the expansion of $(1+2x)^n$ is 6561, the greatest term in the expansion for $x=1/2$ is
   (1) 4th (2) 5th
   (3) 6th (4) none of these

9. If the sum of the coefficients in the expansion of $(1+2x)^n$ is 6561, then the greatest coefficient in the expansion is
   (1) 896 (2) 3594
   (3) 1792 (4) none of these

10. If the coefficients of 4th and $(1+1)^{th}$ terms in the expansion of $(3+7x)^{29}$ are equal, them r equals
    (1) 15 (2) 21
    (3) 14 (4) none of these

11. If the second, third and fourth terms in the expansion of $(x+y)^n$ are 135, 30 and 10/3 respectively, then
    (1) n = 7 (2) n = 5
    (3) n = 6 (4) none of these

12. The coefficient of the term indepdnednt of x in the expansion of $\left(1+x+2x^3\right)\left(\frac{3}{2}x^2-\frac{1}{3x}\right)^9$ is
    (1) 1/3 (2) 19/54
    (3) 17/54 (4) 1/4

13. The positive integer just greater than $(1+0.0001)^{10000}$ is
    (1) 3 (2) 4
    (3) 5 (4) none of these

14. If $[x]$ denotes the greatest integer less than or equal to x, then $\left[(1+0.0001)^{10000}\right]$ equals
    (1) 3 (2) 2
    (3) 0 (4) none of these

15. The greatest integer less than or equal to

$\left(\sqrt{2}+1\right)^6$ is

(1) 197 (2) 198

(3) 196 (4) 199

16. If x^m occurs in the expansion of $\left(x+\frac{1}{x^2}\right)^{2n}$ the coefficient of x^m is

(1) $\frac{(2n!)}{m!(2n-m)!}$ (2) $\frac{(2n!)3!3!}{(2n-m)!}$

(3) $\frac{(2n!)}{\left(\frac{2n-m}{3}\right)!\left(\frac{4n+m}{3}\right)!}$

(4) none of these

17. If $R=\left(6\sqrt{6}+14\right)^{2n+1}$ and $f=R-[R]$, where [.] denotes the greatest integer function, the R f equals

(1) 20^n (2) 20^{2n}

(3) 20^{2n+1} (4) none of these

18. If $R=\left(\sqrt{2}+1\right)^{2n+1}$ and $f=R-[R]$, where [ ] denotes the greatest integer function, the [R] equal

(1) $f+\frac{1}{f}$ (2) $f-\frac{1}{f}$

(3) $\frac{1}{f}-f$ (4) none of these

19. If $n>1$, then $(1+x)^n-nx-1$ is divisible by

(1) x (2) x^2

(3) x^3 (4) x^4

20. There are two bags each of which contains n balls. A man has to select an equal number of balls from both the bags. The number of ways in which a man can choose at least one ball from each bag is

(1) ${}^{2n}C_n$ (2) $\left({}^{n}C_n\right)^2$

(3) ${}^{2n}C_1$ (4) ${}^{2n}C_n-1$

21. If P_n d`enotes the product of the binomical coefficients in the expansion of $(1+x)^n$, then $\frac{P_{n+1}}{P_n}$ equals

(1) $\frac{n+1}{n!}$ (2) $\frac{n^n}{n!}$

(3) $\frac{(n+1)^n}{(n+1)!}$ (4) $\frac{(n+1)^{n+1}}{(n+1)!}$

22. If $\left(5+2\sqrt{6}\right)^n=I+f$, where $I\in N, n\in N$ and $0\le f<1$, then I equals

(1) $\frac{1}{f}-f$ (2) $\frac{1}{1+f}-f$

(3) $\frac{1}{1-f}-f$ (4) $\frac{1}{1-f}+f$

23. If $R=\left(7+4\sqrt{3}\right)^{2n}=1+f$, where $1\in N$ and $0<f<1$, then $R(1-f)$ equals

(1) $\left(7-4\sqrt{3}\right)^{2n}$ (2) $\frac{1}{\left(7+4\sqrt{3}\right)^{2n}}$

(3) 1 (4) none of these

24. The number $101^{100}-1$ isdivisible by

(1) 100 (2) 1000

(3) 10000 (4) 100000

25. P is a set containing n elements. A subset A of P is chosen and the set P is reconstructed by replacing the elements of A. Asubset B of P is chosen again. The number of ways of choosing A and B such that A and B have no common elements is

(1) 2^n (2) 3^n

(3) 4^n (4) none of these

26. In example 25, the number of ways of choosing A and B such that A = B, is

(1) 2^n (2) 3^n

(3) ${}^{2n}c_n$ (4) none of these

27. In, example 25, the number of ways of choosing A and B such that A and B have equal number of elements, is

(1) 2^n (2) 3^n

(3) $\left(2^n\right)^2$ (4) ${}^{2n}c_n$

28. In example 25, the number of ways of choosing A and B such that B contains just one element more than A, is

(1) ${}^{2n}c_{n-1}$ (2) 3^n

(3) $\left(2^n\right)^2$ (4) ${}^{2n}c_n$

29. In example 25, the number of ways of choosing A and B such that B is a subject of A, is

(1) 2^n (2) 3^n

(3) ${}^{2n}c_n$ (4) none of these

30. $\sum_{r=0}^{n}(-1)^{rn}\, c_r \dfrac{1+r\log_e 10}{\left(1+\log_e 10^n\right)^r}$ equals

(1) 1 (2) -1

(3) n (4) none of these

31. In the expansion of $(1+x)^n(1+y)^n(1+z)^n$, the sum of the coefficients of the terms of degree r is

(1) $\left({}^nC_r\right)^3$ (2) $3.{}^nC_r$

(3) ${}^{3n}C_r$ (4) ${}^nC_{3r}$

32. The number of non -negative integral solutions of theequation $x+y+3z=33$ is

(1) 120 (2) 135

(3) 210 (4) 520

33. *If* $n>3$, then

$xyC_0 - (x-1)(y-1)C_1 + (x-2)(y-2)C_2 - (x-3)(y-3)C_3 + \ldots + (-1)^n(x-n)(y-n)C_n$ equals

(1) $xy\times 2^n$ (2) $n\,xy$

(3) xy (4) none of these

34. If $n>3$, then $xyz\,C_0 - (x-1)(y-1)(z-1)C_1 + (x-2)(y-2)(z-2)C_2 - (x-3)(y-3)(z-3)C_3 + \ldots + (-1)^n(x-n)(y-n)(z-n)C_n$ equals

(1) xyz (2) $nxyz$

(3) $-xyz$ (4) none of these

35. The total number of dissimilar terms in the expansion of $\left(x_1+x_2+\ldots+x_n\right)^3$ is

(1) n^3 (2) $\dfrac{n^3+3n^2}{4}$

(3) $\dfrac{n(n+1)(n+2)}{6}$ (4) $\dfrac{n^2(n+1)^2}{4}$

36. The value of ${}^{95}C_4+\sum_{j=1}^{5}{}^{100-j}C_3$ is

(1) ${}^{99}C_5$ (2) ${}^{100}C_4$

(3) ${}^{99}C_4$ (4) ${}^{100}C_5$

37. The coefficient of x^5 in the expansion of $(1+x)^{21}+(1+x)^{22}+\ldots+(1+x)^{30}$ is

(1) ${}^{51}C_5$ (2) ${}^{9}C_5$

(3) ${}^{31}C_6-{}^{21}C_6$ (4) ${}^{30}C_5+{}^{20}C_5$

38. The cofficient of x^6 in the expansion of $\left(1+x^2-x^3\right)^8$ is

(1) 80 (2) 84

(3) 88 (4) 92

39. The digit at unit's place in the number $17^{1995}+11^{1995}-7^{1995}$ is

(1) 0 (2) 1

(3) 2 (4) 3

40. If

$$\frac{1}{\sqrt{4x+1}}\left\{\left(\frac{1+\sqrt{4x+1}}{2}\right)^n-\left(\frac{1-\sqrt{4x+1}}{2}\right)^n\right\}$$

$=a_0+a_1x+\ldots+a_5x^5$, then n =

(1) 11 (2) 9

(3) 10 (4) none of these

41. *If* $f(x)=x^n$, then the value of $f(1)+\dfrac{f^1(1)}{1}+\dfrac{f^2(1)}{2!}+\ldots+\dfrac{f^n(1)}{n!}$, where

$f^r(x)$ denotes the rth order derivative of $f(x)$ with respect to x, is

(1) n (2) 2^n

(3) 2^{n-1} (4) none of these

42. The expression

$$\frac{1}{\sqrt{4x+1}}\left\{\left(\frac{1+\sqrt{4x+1}}{2}\right)^7-\left(\frac{1-\sqrt{4x+1}}{2}\right)^7\right\}$$

is a polynomial in x of degree

(1) 7 (2) 5

(3) 4 (4) 3

43. If C_r be the coefficient of x^r in $(1+x)^n$, then the value of $\sum_{r=0}^{n}(r+1)^2 C^r$ is

(1) $(n+1)(n+4)2^{n-2}$

(2) $(n+1)(n+4)2^{n-1}$

(3) $(n+1)^2 2^{n-2}$ (4) $(n+4)^2 2^{n-2}$

44. If the second term in the expansion $\left(\sqrt[13]{a}+\frac{a}{\sqrt{a^{-1}}}\right)^n$ is $14a^{5/2}$, then the value of ${}^nC_3/{}^nC_2$ is

(1) 4 (2) 3

(3) 12 (4) 6

45. If n is an odd natural number, then $\sum_{r=0}^{n}\frac{(-1)^r}{{}^nC_r}$ equals

(1) 0 (2) $\frac{1}{n}$

(3) $\frac{n}{2^n}$ (4) none of these

46. If n is an even natural number, then $\sum_{r=0}^{n}\frac{(-1)^r}{{}^nC_r}$ equals

(1) 0 (2) $\frac{1}{n}$

(3) $\frac{(-1)^{n/2}}{{}^nC_{n/2}}$ (4) none of these

47. If $a_n=\sum_{r=0}^{n}\frac{1}{{}^nC_r}$, then $\sum_{r=0}^{n}\frac{r}{{}^nC_r}$ equals

(1) $(n-1)a_n$ (2) na_n

(3) $\frac{n}{2}a_n$ (4) none of these

48. The coefficient of the term independent of x in the expansion of $\left(\frac{x+1}{x^{2/3}-x^{1/3}+1}-\frac{x-1}{x-x^{1/2}}\right)^{10}$ is

(1) 210 (2) 105

(3) 70 (4) 112

49. The coefficient of x^r in the expansion of $(1-4x)^{-1/2}$ is

(1) $\frac{(2r)!}{(r!)2}$ (2) ${}^{2r}C_r$

(3) $\frac{1.35....(2r-1)}{2^r r!}$ (4) none of these

50. The value of $1.C_1+3.C_3+5.C_5+7.C_7+....,$ where $C_0, C_1, C_2,....C_n$ are the binomial coefficients in the expansion of $(1+x)^n$, is

(1) $n.2^{n-1}$ (2) $n.2^{n-2}$

(3) $n(n-1)2^{n-1}$ (4) none of these

51. The value of $1^2.C_1+3^2.C_3+5^2.C_5+...$, is

(1) $n(n-1)2^{n-2}+n.2^{n-1}$ (2) $n(n-1)2^{n-2}$

(3) $n(n-1).2^{n-3}$ (4) none of these

52. If in the expansion of $(1+x)^m(1-x)^n$, the coefficients of x and x^2 are 3 and -6 respectively, then m is

(1) 6 (2) 9

(3) 12 (4) 24

53. If A and B are coefficients of x^r and x^{n-r}

respectively the expansion of $(1+x)^n$, then

(1) A = B (2) $A \neq B$

(3) $A = \lambda B$ for some λ (4)none of these

54. coefficient of x^{-4} in $\left(\frac{3}{2}-\frac{3}{x^2}\right)^{10}$ is

(1) $\frac{406}{226}$ (2) $\frac{504}{289}$

(3) $\frac{450}{263}$ (4)none of these

55. In the expansion of $(x+a)^n$ the sum of evem terms is E and that of odd terms is O, then $O^2 - E^2$ is equal to

(1) $(x^2+a^2)^n$ (2) $(x^2-a^2)^n$

(3) $(x-a)^{2n}$ (4) none of these

56. The number of terms in the expansion of $(1+2x+x^2)^{20}$, when expanded in descending powers of x, is

(1) 20 (2) 21

(3) 40 (4) 41

57. The largest coefficient in the expansion of $(1+x)^{24}$ is

(1) ${}^{24}C_{24}$ (2) ${}^{24}C_{13}$

(3) ${}^{24}C_{12}$ (4) ${}^{24}C_{11}$

58. The number of terms in the expansion of $(2x+3y-4z)^n$ is

(1) $n+1$ (2) $n+3$

(3) $\frac{(n+1)(n+2)}{2}$ (4) none of these

59. In the expansion of $\left(x^3-\frac{1}{x^2}\right)^{15}$, the constant term is

(1) ${}^{15}C_9$ (2) 0

(3) ${}^{-15}C_9$ (4) 1

60. The coefficient of x^4 in the expansion of $\left(\frac{x}{2}-\frac{3}{x^2}\right)^{10}$ is

(1) $\frac{405}{256}$ (2) $\frac{504}{259}$

(3) $\frac{450}{263}$ (4) none of these

61. Given positive integers $r>1, n>2$ and the coefficients of $(3r)th$ and $(r+2)th$ terms in the binomial expansion of $(1+x)^{2n}$ are equal. then

(1) n = 2 r (2) n =3 r

(3) n =2 r +1 (4) none of these

62. The number of terms in the expansion of $(1+5\sqrt{2}x)^9+(1-5\sqrt{2}x)^9$ is

(1) 5 (2) 7

(3) 9 (4) 10

63. The sum of the series $\sum_{r=0}^{10} {}^{20}C_r$ is

(1) 2^{20} (2) 2^{19}

(3) $2^{19}+\frac{1}{2}{}^{20}C_{10}$ (4) $2^{19}-\frac{1}{2}{}^{20}C_{10}$

64. The value of the expansion ${}^{47}C_4+\sum_{j=1}^{5} {}^{52-j}C_3$ is equal to

(1) ${}^{47}C_5$ (2) ${}^{52}C_5$

(3) ${}^{52}C_4$ (4) none of these

65. If the coefficient of rth, $(r+1)th$ and $(r+2)th$ terms in the expansion of $(1+x)^{14}$ are in A.P, then the value of r is

(1) 5 (2) 6

(3) 7 (4) 9

66. The value of $\sum_{k=0}^{n}(-1)^k\,{}^nC_k$ is

(1) -1 (2) 2^k

(3) 2^n (4) 0.

67. If $|x|<1$, then the coefficient of x^n in the expansion of $\left(1+x+x^2+x^3...\right)^2$ is

(1) n (2) $n-1$

(3) $n+2$ (4) $n+1$

68. If C_r stands for ${}^nC_r$, then the sum of first $(n+1)$ terms of the series

$$aC_0-(a+d)C_1+(a+2d)C_2-(a+3d)C_3+...$$

is

(1) $\frac{a}{2^n}$ (2) na

(3) 0 (4) none of these

69. If $\left(1+x+x^2\right)^n = C_0+C_1x+C_2x^2+....$, then the value of $C_0C_1-C_1C_2+C_2C_3-...$ is

(1) 3^n (2) $(-1)^n$

(3) 2^n (4) none of these

70 If $\left(\sqrt{2}+1\right)^6 = I+F$ where $0\le F<1$ and $I\in N$, then the value of I is.

(1) 196 (2) 197

(3) 198 (4) 199

71. If the coefficients of the second, third and fourth terms in the expansion of $(1+x)^n$ are in AP, then the value of n is

(1) 2 (2) 7

(3) 6 (4) 8

72. If A and B arwe coefficients of x^n in the expansions of $(1+x)^{2n}$ and $(1+x)^{2n-1}$ respectively, then

(1) $A=B$ (2) $2A=B$

(3) $A=2B$ (4) none of these

73. If the binomial coefficients of 2nd, 3rd and 4th terms in the expansion of

$$\left[\sqrt{2^{\log_{10}\left(10-3^x\right)}}+\sqrt[5]{2^{(x-2)\log_{10}3}}\right]^m$$

, are in AP and the 6th term is 21, then the value (s) of x is (are)

(1) 1 ,3 (2) 0, 2

(3) 4 (4) -1.

74. If the 6th term in the expansion of $\left(\frac{1}{x^{8/3}}+x^2\log_{10}x\right)^8$ is 5600, then x equals

(1) 1 (2) $\log_e 10$

(3) 10 (4) x does not exist

75. If the 4th term in the expansion of $\left(ax+\frac{1}{x}\right)^n$ is $\frac{5}{2}$, then the value of a and n are

(1) $\frac{1}{2}, 6$ (2) 1, 3

(3) $\frac{1}{2}, 3$ (4) cannot be found

76. The coefficients of x^m and x^n $(m,n\in N)$ in the expansion of $(1+x)^{m+n}$ are

(1) equal

(2) equal but opposite in sign

(3) reciprocal to each other

(4) none of these

77. If the (r +1)th term in the expansion of $\left(\frac{\sqrt[3]{a}}{\sqrt{b}}+\frac{\sqrt{b}}{\sqrt[3]{a}}\right)^{21}$ contains a and b to one and the same power, then the value of r is

(1) 9 (2) 10

(3) 8 (4) 6

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

(1) $2n^2+9n+7=0$ (2) $2n^2-9n+7=0$

(3) $2n^2-9n-7=0$ (4) none of these

79. The coefficient of x^4 in the expansion of $\left(1+x+x^2+x^3\right)^{11}$ is

(1) 900 (2) 909

(3) 990 (4) 999

80. If

$(1+x-2x^2)^6 = 1+C_1+C_2x^2+C_3x^3+\ldots$

, $+C_{12}x^{12}$, then the value of

$C_2+C_4+C_6+\ldots+C_{12}$ is

(1) 30 (2) 32

(3) 31 (4) none of these

81. If the coefficient of the middle terms in the expansion of $(1+x)^{2n+1}$ is p and the coefficient of middle terms in the expansion of $(1+x)^{2n+1}$ are q and r, then

(1) $p+q=r$ (2) $p+r=q$

(3) $p=q+r$ (4) $p+q+r=0$

82. If a_1, a_2, a_3, a_4 are the coefficients of any four consecutive terms in the expansion of $(1+x)^n$,

then $\frac{a_1}{a_1+a_2}+\frac{a_3}{a_3+a_4}$ is equal to

(1) $\frac{a_2}{a_2+a_3}$ (2) $\frac{1}{2}\frac{a_2}{a_2+a_3}$

(3) $\frac{2a_2}{a_2+a_3}$ (4) $\frac{2a_3}{a_2+a_3}$

83. The coefficient of $x^2\ (0\le r\le(n-1))$ in the expansion of $(x+3)^{n-1}+(x+3)^{n-2}(x+2)+(x+3)^{n-3}(x+2)^2+\ldots+(x+2)^{n-1}$ is

(1) ${}^nC_r\left(3^r-2^n\right)$ (2) ${}^nC_r\left(3^{n-r}-2^{n-r}\right)$

(3) ${}^nC_r\left(3^r+2^{n-r}\right)$ (4) none of these

84. If

$(1-x+x^2)^n = a_0+a_1x+a_2x^2+\ldots+a_{2n}x^{2n}$,

then $(a_0+a_2+a_4+\ldots+a_{2n})$ is equal to

(1) $\frac{3^n+1}{2}$ (2) $\frac{3^n-1}{2}$

(3) $\frac{3^{n-1}+1}{2}$ (4) $\frac{3^{n-1}-1}{2}$

85. The coefficient of x^m in

$(1+x)^p+(1+x)^{p+1}+\ldots+(1+x)^n$,

$p\le m\le n$ is

(1) ${}^{n+1}C_{m+1}$ (2) ${}^{n-1}C_{m-1}$

(3) ${}^nC_m$ (4) ${}^nC_{m+1}$

86. In the third term in the expansion of

$\left(\frac{1}{x}+x^{\log_{10}x}\right)^5$ is 1000, then the value of x is

(1) 10 (2) 100

(3) 1 (4) none of these

87. If the coefficient of x^7 in the expansion of $\left(a\,x^2+b^{-1}x^{-1}\right)^{11}$ is equal to the coefficient of x^{-7} in $\left(ax-b^{-1}x^{-2}\right)^{11}$, then ab =

(1) 1 (2) 2

(3) 3 (4) 4

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

(1) 30 (2) 60

(3) 40 (4) none of these

89. The greatest term in the expansion of

$\sqrt{3}\left(1+\frac{1}{\sqrt{3}}\right)^{20}$ is

(1) $\frac{25840}{9}$ (2) $\frac{24840}{9}$

(3) $\frac{26840}{9}$ (4) none of these

90. If $T_0, T_1, T_2, \ldots, T_n$ represent the terms in the expansion of $(x+a)^n$, then the value of

$(T_0-T_2+T_4-T_6\ldots)^2+(T_1-T_3+T_5+\ldots)^2$ is

(1) $(x^2-a^2)^n$ (2) $(x^2+a^2)^n$

(3) $(a^2-x^2)^n$ (4) none of these

91. The total number of terns in the expansion of $(x+y)^{100}+(x-y)^{100}$ after simplification is

(1) 50 (2) 51

(3) 202 (4) none of these

92. If the coefficients of three consecutive terms in the expansion of $(1+x)^n$ are in the ratio 1 : 7 : 42, then the value of n is
(1) 50 (2) 70
(3) 10 (4) 5

93. If the second, third and fourth term in the expansion of $(x+a)^n$ are 240, 720 and 1080 respectively, then the value of n is
(1) 15 (2) 20
(3) 10 (4) 5

94. The value of $\dfrac{18^3+7^3+3.18.7.25}{3^6+6.243.2+15.181.4+20.27.8+15.9.16+6.3.32+64}$ is
(1) 10 (2) 1
(3) 2 (4) 20

95. If the coefficients of $(2r+4)th$ and $(r-2)th$ terms in the expansion of $(1+x)^{18}$ are equal, then the value of r is
(1) 5 (2) 6
(3) 7 (4) 9

96. The middle term in the expansion of $\left(x+\dfrac{1}{x}\right)^{10}$ is
(1) ${}^{10}C_1 \dfrac{1}{x}$ (2) ${}^{10}C_5$
(3) ${}^{10}C_6$ (4) ${}^{10}C_7\, x.$

97. The 14th term from the end in the expansion of $\left(\sqrt{x}-\sqrt{y}\right)^{17}$ is
(1) ${}^{17}C_5\, x^6\left(-\sqrt{y}\right)^5$ (2) ${}^{17}C_6\left(\sqrt{x}\right)^{11} y^3$
(3) ${}^{17}C_4\, x^{13/2}\, y^2$ (4) none of these

98. If [x] denotes the greatest integer less than or equal to x and F = R – [R] where $R=\left(5\sqrt{5}+11\right)^{2n+1}$, then RF is equal to
(1) 4^{2n+1} (2) 4^{2n}
(3) 4^{2n-1} (4) none of these

99. If [x] denotes the greatest integer less than or equal to x, then $\left[\left(6\sqrt{6}+14\right)^{2n+1}\right]$
(1) is an even integer (2) is an odd integer
(3) depends on n (4) none of these

100. If $n\in N$ such that $\left(7+4\sqrt{3}\right)^n \left(7+4\sqrt{3}\right)^n = 1+F$, where $I\in N$ and $0<F<1$. Then the value of $(I+F)(I-F)$ is
(1) 0 (2) 1
(3) 7^{2n} (4) 2^{2n}

101. If the ratio of the 7th term from the berinning to the seventh term from the end in the expansion of $\left(\sqrt{2}+\dfrac{1}{\sqrt[3]{3}}\right)^x$ is $\dfrac{1}{6}$, then x is
(1) 9 (2) 6
(3) 12 (4) none of these

102. The sum of the coefficients in the expansion of the polynomial $\left(1+x-3x^2\right)^{2143}$ is
(1) –1 (2) 1
(3) 0 (4) none of these

103. If the sum of the coefficients in the expansion of $\left(\alpha^2 x^2-2\alpha x+1\right)^{51}$ vanishes, then the value of α is
(1) 2 (2) –1
(3) 1 (4) –2

104. If $n\in N$, then the sum of the coefficients in the expansion of the binomial $(5x-4y)^n$ is
(1) 1 (2) –1
(3) 1 (4) 0

105. If the sum of the coefficients in the expansion of $\left(1-3x+10x^2\right)^n$ is a and if the sum of the coefficients in the expansion of $\left(1+x^2\right)^n$ is b, then
(1) a = 3b (2) $a = b^3$
(3) $b = a^3$ (4) none of these

106. If the coefficient of $(r+1)th$ term in the

expansion of $(1+x)^{2n}$ be equal to theat of $(r+3)th$ term, then

(1) $n-r+1=0$ (2) $n-r-1=0$

(3) $n+r+1=0$ (4) none of these

107. The coefficient of the middle term in the expansion of $(1+x)^{2n}$ is

(1) $\frac{1.3.5....(2n-1)}{n!}2^n$

(2) $\frac{1.3.5....(2n-1)}{(n!)^2}2^n$

(3) $\frac{(2n)!}{(n!)^2}2^{2n}$ (4) none of these

108. If n is even, then the greatest coefficient in the expansion of $(x+a)^n$ is

(1) ${}^nC_{\frac{n}{2}+1}$ (2) ${}^nC_{\frac{n}{2}-1}$

(3) ${}^nC_{\frac{n}{2}}$ (4) none of these

109. If n is even and rth has the greatest coefficient in the binomial expansion of $(1+x)^n$, then

(1) $r=\frac{n}{2}$ (2) $r=\frac{n}{2}+1$

(3) $r=\frac{n}{2}-1$ (4) none of these

110. If there is a term containing x^{2r} in $\left(x+\frac{1}{x^2}\right)^{n-3}$, then

(1) $n-2r$ is a positive integral multiple of 3

(2) $n-2r$ is even (3) $n-2r$ is odd

(4) none of these

111. If n is even positive integer, then the condition that the greatest term in the expansion of $(1+x)^n$ may have the greatest coefficient also is

(1) $\frac{n}{n+2}<x<\frac{n+2}{n}$ (2) $\frac{n+1}{n}<x<\frac{n}{n+1}$

(3) $\frac{n}{n+4}<x<\frac{n+4}{4}$ (4) none of these

112. If the fourth term in the expansion of $\left(\sqrt{x\left(\frac{1}{\log x+1}\right)}+x^{1/12}\right)^6$ is equal to 200 and $x>1$ x is equal to

(1) $10^{\sqrt{2}}$ (2) 10

(3) 10^4 (4) none of these

113. The interval in which x must lie so that the numerically greatest term in the expansion of $(1-x)^{21}$ has the numerically greatest coefficient is

(1) $\left[\frac{5}{6},\frac{6}{5}\right]$ (2) $\left(\frac{5}{6},\frac{6}{5}\right)$

(3) $\left(\frac{4}{5},\frac{5}{4}\right)$ (4) $\left[\frac{4}{5},\frac{5}{4}\right]$

114. The interval in which x must lie so that the greatest term in the expansion of $(1+x)^{2n}$ has the greatest coefficient is

(1) $\left(\frac{n-1}{n},\frac{n}{n-1}\right)$ (2) $\left(\frac{n}{n+1},\frac{n+1}{n}\right)$

(3) $\left(\frac{n}{n+2},\frac{n+2}{n}\right)$ (4) none of these

115. If the rth, $(r+1)th$ and $(r+2)th$ coefficients of $(1+x)^n$ are in AP, then n is a root of the equation

(1) $x^2-x(4r+1)+4r^2-2=0$

(2) $x^2+x(4r+1)+4r^2-2=0$

(3) $x^2+x(4r+1)+4r^2+2=0$

(4) none of these

116. The remainder when 5^{99} is divided by 13 is

(1) 6 (2) 8

(3) 9 (4) 10

117. *If* $C_0, C_1, C_2, ..., C_n$ denote the binomial coefficient in the expansion of $(1+x)^n$, then the

value of $\sum_{r=1}^{n} rC_r$ is

(1) $n.2^{n-1}$ (2) $(n+1)2^n$

(3) $(n+1)2^{n-1}$ (4) $(n+2).2^{n-1}$

118. If $C_{0,} C_{2,} C_{2,} ... C_n$ denote the binomial coefficient in the expansion of $(1+x)^n$, then the value of $\sum_{r=0}^{n} (r+1)C_r$ is

(1) $n2^n$ (2) $(n+1)^{2n-1}$

(3) $(n+2)2^{n-1}$ (4) $(n+2)2^{n-2}$

119. If $C_{0,} C_{1,} C_{2,} ..., C_n$ denote the binomial cofficeint in the expansion of $(1+x)^n$, then the value of $aC_0 + (a+b)C_1 + (a+2b)C_2 + ... + (a+nb)C_n$ is

(1) $(a+nb)2^n$ (2) $(a+nb)2^{n-1}$

(3) $(2a+nb)2^{n-1}$ (4) $(2a+nb)2^n$.

120. Let $(1+x)^n = \sum_{r=0}^{n} C_r x^r$ and $\frac{C_1}{C_0} + 2\frac{C_2}{C_1} + 3\frac{C_3}{C_2} + ... n\frac{C_n}{C_{n-1}} = \frac{1}{k} n(n+1)$, then the value of k is

(1) $\frac{1}{2}$ (2) 2

(3) $\frac{1}{3}$ (4) 3

121. The value of $\sum_{r=0}^{n} (-1)^r \, {}^nC_r$ is

(1) -1 (2) 2^n

(3) 2^{-n} (4) 0

122. Let $(1+x)^n = \sum_{r=0}^{n} C_r x^r$ and $\sum_{r=0}^{n} \frac{C_r}{r+1} = k$, then the value of k is

(1) $\frac{2^{n+1}+1}{n+1}$ (2) $\frac{2^{n+1}-1}{n+1}$

(3) $\frac{2^n+1}{n+1}$ (4) $\frac{2^n-1}{n+1}$

123. If $C_{0,} C_{1,} C_{2,} ... C_n$ are binomial coefficient in the expansion of $(1+x)^n$, then the value of $C_0 - \frac{C_1}{2} + \frac{C_2}{3} - \frac{C_3}{4} + ... + (-1)^n \frac{C_n}{n+1}$ is

(1) 0 (2) $\frac{1}{n+1}$

(3) $\frac{2^n}{n+1}$ (4) $-\frac{1}{n+1}$

124. If n is an integer than unity, then the value of $a - {}^nC_1(a-1) + {}^nC_2(a-2) - {}^nC_3 + ... + (-1)^n (a-n)$ is

(1) 0 (2) 1

(3) n (4) -1

125. The value of the sum of the series $3.{}^nC_0 - 8\,{}^nC_1 + 13\,{}^nC_2 - 18\,{}^nC_3 + ...uj$

(1) 0 (2) 3^n

(3) 5^n (4) none of these

126. If $(1+x)^n = C_0 + C_1 x + C_2 x^2 + ... + C_n x^n$, then $C_1^2 + C_2^2 + ... + C_n^2$ is equal to

(1) 2^{2n-2} (2) 2^n

(3) $\frac{(2n)!}{2(n!)^2}$ (4) $\frac{(2n)!}{(n!)^2}$

127. If $(1+x)^n + C_0 + C_1 x + C_2 x^2 + ... + C_n x^n$, then for n odd, $C_0^2 - C_1^2 + C_2^2 - C_3^2 + ... + (-1)^n C_n^2$ is equal to

(1) 2^{2n-2} (2) 2^n

(3) $\frac{(2n)!}{2(n!)^2}$ (4) $\frac{(2n)!}{(n!)^2}$

128. If $(1+x)^n = C_0 + C_1 x + C_2 x^2 + ... + C_n x^n$, then for n odd, $C_0{}^2 - C_1{}^2 - C_2{}^2 - C_3{}^2 + ... + (-1)^n C_n{}^2$ is equal

to

(1) 0 (2) 2^{2n-2}

(3) $\frac{(2n)!}{2(n!)^2}$ (4) 2^{2n}

129. If $C_0, C_1, C_2 ... C_n$ arecofficeints in the binomial expansion of $(1+x)^n$ and n is even, then the value of $C_0^2 - C_1^2 + C_2^2 - C_3^2 + ... + (-1)^n C_n^2$ is

(1) 0 (2) $(-1)^{n/2} \frac{n!}{\left[\left(\frac{n}{2}\right)!\right]^2}$

(3) $(-1)^n \frac{(2n)!}{(n!)^2}$ (4) $\frac{(2n)!}{(n!)^2}$

130. If $C_0, C_1, C_2 ... C_n$ arecofficients in the binomial expansion of $(1+x)^n$, then $C_0C_2 + C_1C_3 + C_2C_4 + ... + C_{n-2}C_n$ is equal to

(1) $\frac{(2n)!}{(n-2)!(n+2)!}$ (2) $\frac{(2n)!}{((n-2)!)^2}$

(3) $\frac{(2n)!}{((n+2)!)^2}$ (4) none of these

131. The value of

$$2C_0 + \frac{2^2}{2}C_1 + \frac{2^3}{3}C_2 + \frac{2^4}{4}C_3 + ... + \frac{2^{11}}{11}C_{10}$$ is

(1) $\frac{3^{11}-1}{11}$ (2) $\frac{2^{11}-1}{11}$

(3) $\frac{11^3-1}{11}$ (4) $\frac{11^2-1}{11}$

132. If *m, n, r,* are positive integers such that $r < m, n$, then ${}^mC_r + {}^mC_{r-1}{}^nC_1 + {}^mC_{r-2}{}^nC_2 + ... + {}^mC_1{}^nC_{r-1} + {}^nC_r$ equals

(1) $({}^nC_r)^2$ (2) ${}^{m+n}C_r$

(3) ${}^{m+n}C_r + {}^mC_r + {}^nC_r$ (4) none of these

133. The value of

$$\frac{1}{81^n} - \frac{10}{81^n}{}^{2n}C_1 + \frac{10^2}{81^n}{}^{2n}C_2 - \frac{10^3}{81^n}{}^{2n}C_3 + ... + \frac{10^{2n}}{81^n}$$ is

(1) 2 (2) 0

(3) 1/2 (4) 1

134. If $x+y=1$, then $\sum_{r=0}^{n} r\,{}^nC_r x^r y^{n-r}$ equals

(1) 1 (2) n

(3) nx (4) ny

135. If $x+y=1$,then $\sum_{r=0}^{n} r^2\,{}^nC_r x^r y^{n-r}$ equals

(1) nxy (2) $nx(x+yn)$

(3) $nx(nx+y)$ (4) none of these

136. The term independent of x in the expansion of $\left(x-\frac{1}{x}\right)^4\left(x+\frac{1}{x}\right)^3$ is

(1) -3 (2) 0

(3) 1 (4) 3

137. The positive value of a so that the coefficients of x^5 and x^{15} are equal in the expansion of $\left(x^2+\frac{a}{x^3}\right)^{10}$

(1) $\frac{1}{2\sqrt{3}}$ (2) $\frac{1}{\sqrt{3}}$

(3) 1 (4) $2\sqrt{3}.$

138. If n is a positive integer and $C_k = {}^nC_k$, then $\sum_{k=1}^{n} k^3\left(\frac{C_k}{C_{k-1}}\right)^2$ equals

(1) $\frac{n(n+1)(n+2)}{12}$ (2) $\frac{n(n+1)^2(n+2)}{12}$

(3) $\frac{n(n+1)(n+2)^2}{12}$ (4) none of these

139. The coefficient of x^{50} in the expression

$$(1+x)^{1000} + 2x(1+x)^{999} + 3x^2(1+x)^{998} + ... +$$

$1001x^{1000}$ is

(1) ${}^{1000}C_{50}$ (2) ${}^{1001}C_{50}$

(3) ${}^{1002}C_{50}$ (4) ${}^{1000}C_{51}$

140. The coefficient of x^5 in $(1+2x+3x^2+...)^{-3/2}$ is

(1) 21 (2) 25
(3) 26 (4) none of these

141. If $|x|<1$, then the coefficient of x^n in the expansion of $(1+x+x^2+x^3+x^4+...)^2$ is

(1) n (2) n- 1
(3) n +2 (4) n +1

142. The general term in the expansion of $(1-2x)^{3/4}$ is

(1) $\frac{-3}{2^r r!}x^2$ (2) $\frac{-3^r}{2^r r!}x^r$

(3) $\frac{-3^r}{2^r (2r)!}x^r$ (4) none of these

143. If C_r stands for ${}^nC_r$, then the sum of the series

$$\frac{2\left(\frac{n}{2}\right)!\left(\frac{n}{2}\right)!}{n!}$$

$\left[C^2{}_0-2C^2{}_1+3c^2{}_2+...+(-1)^n(n+1)C^2{}_n\right]$,

where n is an even positive integer, is equal to

(1) 0 (2) $(-1)^{n/2}(n+1)$

(3) $(-1)^{n/2}(n+2)$ (4) $(-1)^n n$.

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

(1) $\frac{3^{n+1}-1}{2.3^{n+1}}$ (2) $\frac{3^{n+1}-1}{3^{n+1}}$

(3) $2\left(\frac{3^{n+1}-1}{3^{n+1}}\right)$ (4) none of these

145. If $(1-x)^{-n}=a_0+a_1x+a_2x^2+...a^rx^r+...,$ then $a_0+a_1+a_2+...+a_r$ is equal to

(1) $\frac{n(n+1)(n+2)...(n+r)}{r!}$

(2) $\frac{(n+1)(n+2)...(n+r)}{r!}$

(3) $\frac{n(n+1)(n+2)...(n+r-1)}{r!}$

(4) none of these

146. The coefficient of x^n in the expansion of $(1-9x+20x^2)^{-1}$ is

(1) 5^n-4^n (2) $5^{n+1}-4^{n+1}$

(3) $5^{n-1}-4^{n-1}$ (4) none of these

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

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

(3) $2n^2+2n+1$ (4) n^2+2n+2

148. The coefficient of x^n in the expansion of $(1-2x+3x^2-4x^3+...)^{-n}$ is

(1) $\frac{(2n)!}{n!}$ (2) $\frac{(2n)!}{(n!)^2}$

(3) $\frac{1}{2}\frac{(2n)!}{(n!)^2}$ (4) none of these

149. If $(r+1)th$ term is the firsr negative term in the expansion of $(1+x)^{7/2}$, then the value of r is

(1) 5 (2) 6
(3) 4 (4) 7

150. The coefficient of x^7 in the expansion of $(x-2x^2)^{-3}$ is

(1) 67485 (2) 67548
(3) 67584 (4) 67845

151. The coefficient of x^n in the expansion of $(1+x+x^2+...)^{-n}$ is

(1) 1 (2) $(-1)^n$

(3) n (4) $n+1$

152. If x be very small compared with unity such that $\frac{\sqrt{1+x}+\sqrt[3]{(1-x)^2}}{\sqrt{1+x}+(1+x)}=a+bx$, then the values of a and b are

(1) $a=1, b=\frac{5}{6}$ (2) $a=1, b=-\frac{5}{6}$

(3) $a=1, b=\frac{5}{3}$ (4) $a=1, b=-\frac{5}{3}$

153. If x is very small magnitude compared with a such that $\left(\frac{a}{a+x}\right)^{1/2}+\left(\frac{a}{a-x}\right)^{1/2}=2+k\frac{x^2}{a^2}$, then the value of k is

(1) $\frac{1}{4}$ (2) $\frac{1}{2}$

(3) $\frac{3}{4}$ (4) 1

154. If the binomial expansion of $(a+bx)^{-2}$ is $\frac{1}{4}-3x+....$, then (a, b) =

(1) (2, 12) (2) (2, 8)

(3) (–2, –12) (4) none of these

155. If $C_r={}^nC_r$ and $(C_0+C_1)(C_1+C_2)...(C_{n-1}+C_0)=k\frac{(n+1)^n}{n!}$, then the value of k is

(1) $C_0C_1C_2....C_n$ (2) $C_1^2C_2^2....C_n^2$

(3) $C_1+C_2+....+C_n$ (4) none of these

156. If the third term in the binomial expansion of $(1+x)^m$ is $-\frac{1}{8}x^2$, then the rational of m is

(1) 2 (2) 1/2

(3) 3 (4) 4

157. If p is nearly equal to q and $n>1$, such that $\frac{(n+1)p+(n-1)q}{(n-1)p+(n+1)q}=\left(\frac{p}{q}\right)^k$, then the value of k is

(1) n (2) $\frac{1}{n}$

(3) $n+1$ (4) $\frac{1}{n+1}$

158. If $y=3x+6x^2+10x^3+...$, then x =

(1) $\frac{4}{3}-\frac{1.4}{3^2\ 2}y^2+\frac{1.4.7}{3^2.3}y^3....$

(2) $-\frac{4}{3}+\frac{1.4}{3^2\ 2}y^2-\frac{1.4.7}{3^2.3}y^3....$

(3) $\frac{4}{3}+\frac{1.4}{3^2\ 2}y^2+\frac{1.4.7}{3^2.3}y^3....$

(4) none of these

159. The sum of the series $1+\frac{1}{3^2}+\frac{1.4}{1.2}\frac{1}{3^4}+\frac{1.4.7}{1.2.3}\frac{1}{3^6}+...$ is

(1) $\sqrt{\frac{3}{2}}$ (2) $\left(\frac{3}{2}\right)^{1/3}$

(3) $\sqrt{\frac{1}{3}}$ (4) $\left(\frac{1}{3}\right)^{1/3}$

160. If $y=\frac{1}{3}+\frac{1.3}{3.6}+\frac{1.3.5}{3.6.9}+...$, then the value of y^2+2y is

(1) 2 (2) –2

(3) 0 (4) none of these

161. If $(1+2x+x^2)^n=\sum_{r=0}^{2n}a_rx^r$, then a_r =

(1) $({}^nC_r)^2$ (2) ${}^nC_r.{}^nC_{r+1}$

(3) ${}^{2n}C_r$ (4) ${}^{2n}C_{r+1}$

162. The coefficient of x^3 in $\left(\sqrt{x^5}+\frac{3}{\sqrt{x^3}}\right)^6$ is

(1) 0 (2) 120
(3) 420 (4) 540

163. The number of non-zero terms in the expansion of $\left(1+3\sqrt{2}\,x\right)^9+\left(1-3\sqrt{2}\,x\right)^9$ is
(1) 9 (2) 0
(3) 5 (4) 10

164. The coefficient of *y* in the expansion of $\left(y^2+c/y\right)^5$ is
(1) 29 c (2) 10 c
(3) 10 c^3 (4) 20 c^2

165. The greatest coefficient in the expansion of $(1+x)^{10}$ is
(1) $\frac{10!}{5!\,6!}$ (2) $\frac{10!}{(5!)^2}$
(3) $\frac{10!}{5!7!}$ (4) none of these

166. The approximate value of $(7.995)^{1/3}$ correct to four decimal places is
(1) 1.9995 (2) 1.9996
(3) 1.9990 (4) 1.9991

167. The coefficient of x^4 in the expansion of $\left(1+x+x^2+x^3\right)^n$ is
(1) ${}^nC_4$ (2) ${}^nC_4+{}^nC_2$
(3) ${}^nC_4+{}^nC_1+{}^nC_4\,.\,{}^nC_2$
(4) ${}^nC_4+{}^nC_2+{}^nC_1\,.\,{}^nC_2$

168. The term independent of *x* in the expansion of $(1+x)^n(1+1/x)^n$ is
(1) $C_0^2+2C_1^2+3.C_2^2+....+(n+1)C_n^2$
(2) $\left(C_0+C_1+...+C_n\right)^2$
(3) $C_0^2+C_1^2+....+C_n^2$
(4) none of these

169. The expression $\left[x+\left(x^3-1\right)^{1/2}\right]^5\left[x-\left(x^3-1\right)^{1/2}\right]^5$ is a polynomial of defree
(1) 5 (2) 6
(3) 7 (4) 8

170. The coefficient of x^{53} in the expansion $\sum_{m=0}^{100}{}^{100}C_m\,(x-3)^{100-m}\,.2^m$ is
(1) ${}^{100}C_{47}$ (2) ${}^{100}C_{53}$
(3) $-{}^{100}C_{53}$ (4) $-{}^{100}C_{100}$

171. The value of $C_0+3C_1+5C_2+7C_3.....+(2n+1)C_n$ is equal to
(1) 2^n (2) $2^n+n.2^{n-1}$
(3) $2^n.(n+1)$ (4) none of these

172. The largest term in the expansion of $(3+2x)^{50}$ where $x=1/5$ is
(1) 5th (2) 51st
(3) 7th (4) 6th

173. In the expansion of $(1+x)^{50}$, the sum of the coefficients of odd powers of *x* is
(1) 0 (2) 2^{49}
(3) 2^{50} (4) 2^{51}

174. The term independent of *x* in $\left[\frac{\sqrt{x}}{3}+\frac{\sqrt{3}}{2x^2}\right]^{10}$ is
(1) None (2) ${}^{10}C_1$
(3) 5/12 (4) 1

175. If the coefficients of x^7 and x^8 in $(2+x/3)^n$ are equal , then *n* is equal to
(1) 56 (2) 55
(3) 45 (4) 15

176. If the *r*th term in the expansion of $\left(x/3-2/x^2\right)^{10}$ contains x^4, then *r* is equal to
(1) 2 (2) 3
(3) 4 (4) 5

177. If the third term in the expansion of $\left[x+x^{\log_{10}x}\right]^5$ is 10^6 then *x* may be
(1) 1 (2) 10
(3) $10^{-5/2}$ (4) 10^2

178. The value of *x*, for which the 6th term in the

expansion of $\left\{2^{\log_2\sqrt{(9^{x-1}+7)}}+\frac{1}{2^{(1/5)\log_2(3^{x-1}+1)}}\right\}^7$ i
84 is equal to
(1) 4 (2) 3
(3) 2 (4) 1

179. In the expansion of $(1+x)^{2n}(n\in N)$, the coefficients of $(p+1)th$ and $(p+3)th$ terms are equal, then
(1) $p=n-2$ (2) $p=n-1$
(3) $p=n+1$ (4) $p=2n-2$

180. In the expansion of $\left(x^4-\frac{1}{x^3}\right)^{15}$ the coefficient of x^{39} is
(1) 1365 (2) – 1365
(3) 455 (4) – 455

181. The value of $C_0^2+3.C_1^2+5.C_2^2+...$ to $(n+1)$ terms, is
(1) ${}^{2n-1}C_{n-1}$ (2) $(2n+1)^{2n-1}C_n$
(3) $2(n+1).{}^{2n-1}C_{n-1}$
(4) ${}^{2n-1}C_n+(2n+1)^{2n-1}C_{n-1}$

182. The value of
$\frac{1}{n!}+\frac{1}{2!(n-2)!}+\frac{1}{4!(n-4)!}+....,$ us
(1) $\frac{2^{n-2}}{(n-1)!}$ (2) $\frac{2^{n-1}}{n!}$
(3) $\frac{2^n}{n!}$ (4) $\frac{2^n}{(n-1)!}$

183. The coefficients of x^7 and x^8 in the expansion of $\left(2+\frac{x}{3}\right)^n$ are equal, then n is equal to
(1) 35 (2) 45
(3) 55 (4) none of these

184. If $(1+x-2x^2)^6=1+a_1x+a_2x^2+....+a_{12}x^{12}$ then $a_2+a_4+a_6+....+a_{12}=$
(1) 30 (2) 65
(3) 31 (4) 63

185. The ratio of the coefficient of x^{15} to the term independent of x in $\left(x^2+\frac{2}{x}\right)^{15}$ is
(1) 1/4 (2) 1/16
(3) 1/32 (4) 1/64

186. The number of terms in the expansion of $(x+y+x)^{10}$ is
(1) 11 (2) 33
(3) 66 (4) 1000

187. If $(6\sqrt{6}+14)^{2n+1}=m$ and if f is the fractional part of m, then fm is equal to
(1) 15^{n+1} (2) 20^{n+1}
(3) 25^n (4) none of these