**ALVA’S PRE UNIVERSITY COLLEGE, MOODBIDRI**

**CRASH COURSE CLASSES (MATHEMATICS) 2019-20**

**BINOMIAL THEOREM AND STATISTICS**

1. The coefficient of xn in the expansion of and are in the ratio

a) 1 : 2 b) 1 : 3 c) 3 : 1 d) 2 : 1

1. The coefficient of term is equal to the coefficient of term in 

then r =

a) 0 b) 1 c) 2 d) 3

1. The term from the end in is

a)  b)  c)  d) 

1. In the expansion the term independent of x is

a)  b)  c)  d) 

1. If the coefficient of x in is 270, then k =

a) 3 b) 4 c) 5 d) 6

1. In the expansion of coefficients of and are equal then n =

a) 49 b) 50 c) 55 d) 56

1. In the expansion of , the 5th term is 4 times the 4th term and the 4th term is 6 times the 3rd term, then n =

a) 9 b) 10 c) 11 d) 15

1. The total number of terms in the expansion of after simplification

a) 102 b) 25 c) 26 d) 51

1. If in the expansion of and in the expansion of are equal, then n =

a) 3 b) 4 c) 5 d) 6

1. If the coefficients of 2nd , 3rd and 4th terms in the expansion of are in AP then the value of n is

a) 2 b) 7 c) 11 d) 14

1. If then 

a)  b)  c)  d) 

12.The mean deviation of the data 2,9,9,3,6,9,4 from the mean is

a)2.23 b)2.57 c)3.23 d)3.57.

13.variance of the data 2, 4, 5, 6,8,17 is 23.33. Then variance of 4, 8, 10,12,16,34 will be

a)23.33 b) 25.33 c)46.66 d) 48.66.

14.A set of n values has standard deviation . The standard deviation of

n values will be

a)  b) +k c) -k d)k.

15.The standard deviation of the data 6, 5, 9, 13, 12, 8, 10 is

a)  b)  c)6 d)5.

16.The mean of 100 observations is 50 and their standard deviation is 5. The sum of the

squares of all the observations is

a)50000 b) 250000 c) 252500 d) 255000.

17.Let be the observations with mean m and standard deviation s. The

standard deviation of the observations  is

a) k+s b)s/k c) ks d) s.

18.Coefficient of variation of two distributions are 50 and 60, and their arithmetic means

are 30 and 25 respectively. Difference of their standard deviation is

a) 0 b) 1 c) 1.5 d) 2.5.

19.The following information relates to a sample size of 60. 

The variance is

a)6.63 b)16 c) 22 d) 44.

20.Following are the marks obtained by 9 students in a mathematics test:

50,69,20,33,53,39,40,65,59. Then the mean deviation from the median is

1. 9 b)10.5 c)12.67 d)14.76.

21.The variance for first 10 natural numbers is

a)8.25 b) 6.5 c) 3.87 d)2.87

22.The expansion is a polynomial of degree

a) 5 b) 6 c) 7 d) 8

23.If  then

a) Re (Z) = 0 b) Im(Z) = 0 c) Re(Z) > 0, Im(Z) >0 d) Re(Z) < 0, Im(Z) < 0

24.If 21st and 22nd terms in the expansion are equal, then x =

a)  b)  c)  d) 

25.If the middle term of is , then the value of x =

a)  b)  c)  d) 1

26.The coefficient of ( p and q are positive integers) in the expansion

of are

a)equal b) equal with opposite signs c) reciprocal of each other d)none.

27.If the coefficient of 7th and 13th terms in the expansion of are equal, then n =

a) 10 b) 15 c) 18 d) 20

28.The sum of the coefficients in the expansion of is

a)  b)  c)  d) 

29.If the sum of the coefficients in the expansion of vanishes, then

the value of a is

a) 2 b) – 1 c) 1 d) – 2

30.The sum of the coefficients in the expansion of . The greatest

coefficient in the expansion is

a) 924 b) 1024 c) 724 d) 824

31.In the expansion of , the sum of the coefficients of odd powers of x is

a) 0 b) 249 c) 250 d) 251

32.The number of terms in the expansion of is

a) 136 b) 135 c) 116 d) 153

33.The first three terms in the expansion of are 1, 6x and 16x2. Then

the ordered pair (a, n) is

a)  b) (2, 9) c) (3, 2) d) 

34.If denote the binomial coefficients in the expansion of and

then n =

a) 7 b) 8 c) 9 d) 10

35.The coefficient of is is

a) 0 b) 1 c) 2n d) 2nCn

36.The coefficient of middle term in the binomial expansion in powers of x is and

is the same, then 

a)  b)  c)  d) 

37.If the third term in the binomial expansion of is then m =

a) 2 b)  c) 3 d) 4

38.In the binomial expansion of the sum of the 5th and 6th terms is zero

then 

a)  b)  c)  d) 

39.The coefficient of x7 in the expansion of is

a) 132 b) 144 c) – 132 d) – 144

40.The sum of last eight coefficients in the expansion of is

a) 216 b) 215 c) 214 d) 27

41.The two successive terms in the expansion of whose coefficients are in the

ratio 1:4 are

a) 3rd and 4th b) 4th and 5th c) 5th and 6th d) 6th and 7th

42.If the coefficient of 4th term in the expansion of is 20 then the respective

values of and n are

a) 2, 7 b) 5, 8 c) 3, 6 d) 2, 6

43.If the rth term is the middle term in the expansion of then term is

a)  b)  c)  d) 

44.The 7th term in when expanded in descending powers of y is

a)  b)  c)  d) 

45.If the rth term in the expansion of contains x4, then r =

a) 2 b) 3 c) 4 d) 5

46. The 11th term in the expansion of is

a) 1 b)  c)  d) 

47.The value of is

a)  b) 210 c) 211 d) 

48.The middle term of expansion of 

a)  b)  c)  d) 

49.In the binomial expansion of the coefficients of  and are equal, then r =

a) 4 b) 6 c) 8 d) 7

50.If then n =

a) 4 b) 7 c) 3 d) 1

51.The 6th term from the end of the expansion of is

a)  b)  c)  d) 

52.The middle term of is equal to then the value of x is

a)  b)  c)  d) 

53.If the term independent of x in the expansion of is 405, then k =

a) – 3 b) 3 c) 3 or – 3 d) 10

54.If the coefficients of terms in the expansion of are in AP

then r =

a) 5, 9 b) 6, 9 c) 7, 9 d) 8, 9

55. The number of terms in is

a) 36 b) 38 c) 37 d) 150

56.In an experiment with 15 observations the results were available.

 The observation that 20 was found wrong and was replaced

by the correct value 30. The corrected variance is

1. 8.33 b) 78 c) 188.66 d) 177.

57.Mean of 100 items is 49. It was detected later that three items 60, 70 and 80 were wrongly

entered as 40, 20 and 50 respectively. The correct mean is

a)40 b) 50 c) 48 d)51.

58.In a series of observation the coefficient of variation is 30 and mean is 10. Then

the variance is

1. 20 b) 15 c) 100 d) 9

59.The variance of a data is 121. If the A.M is 11 then C.V is

a)100% b) 10% c) 1% d)50%

60.If for a data and n = 10 then C.V for the data is

a) 20 b) 250 c)100 d) 200

**Solutions**

1. Ans : (d)

Required ratio 

1. Ans : (b)

Given  

1. Ans : (a)

The term from the end

term from the beginning

term the beginning 

1. Ans : (b)

If term is independent of x is then 



1. Ans : (a)

If xm is term in then 



1. Ans : (c)

The coefficients of x7 and x8 are equal.



1. Ans : (c)

By data and 

 and 

 and  

1. Ans : (c)

The number of terms in the expansion of if n is odd

1. Ans : (c)



1. Ans : (b)

If  and term in the expansion of are in AP then . Take r = 2 and solve for n.

1. Ans : (a)

Take x = 1,  ----------(1)

x = - 1 ,  -----------(2)

adding (1) and (2), we have



12.Ans : (b)



13.Ans: (c)

When each observation is multiplied by 2, then variance is also multiplied by 2.

14.Ans: (a)

If each observation is increased by a constant k, then S.D. is unchanged.

15.Ans: (a)

S.D =  =

16.Ans: (c)



17.Ans: (c)

If each observation is multiplied by a constant k, then S.D is also multiplied by k.

18.Ans: (a)



19.Ans: (d)

Variance = 

20.Ans: (c)

Median M = 50

M.D(M) = .

21.Ans: (a)

The variance of first n natural numbers =

22.Ans : (c)

We know that 



It is a polynomial of degree 7.

23.Ans : (b)

We know that 



= a real number.

24.Ans : (d)



25.Ans : (d)

Middle term = 

26.Ans : (a)

27.Ans : (c)

Coefficient of T7 = coefficient of T13



28.Ans : (d)

Take 



29.Ans : (c)

Take 



30.Ans : (a)

Take 



31.Ans : (b)

Required sum = 



32.Ans : (d)

The number of terms in the expansion  is 

33.Ans : (a)



34.Ans : (a)



By inspection method, we get n = 7

35.Ans : (a)



36.Ans : (c)

In middle term = 

In  middle term =  

37.Ans : (b)





38.Ans : (b)



39.Ans : (d)



Coefficient of x7 is = 



40.Ans : (c)





41.Ans : (c)



Required terms are 5th and 6th .

42.Ans : (d)



By inspection method 

43.Ans : (b)

Middle term 



44.Ans : (c)

If is expanded the powers of y goes on decreases.



45.Ans : (b)

If rth term contains in , then



46.Ans : (d)



47.Ans : (d)



48.Ans : (c)

Middle term = 

49..Ans : (b)

Coefficient of coefficient of 



50.Ans : (a)



By inspection method n = 4

51.Ans : (b)

6th term from the end = term from the beginning.



52.Ans : (c)

The middle term = 



53.Ans : (c)

term is independent of x.



54.Ans : (a)

Use 

Take n = 14, 



55.Ans : (b)

The number of terms in is if n is odd.

For terms.

56.Ans: (b)

Corrected . Corrected mean = 170-20+30 = 180.

Corrected variance = 

57.Ans: (b)

 and

corrected 

58.Ans: (d)

S.D =  and variance = 9

59.Ans: (a)



60.Ans: (d)

Here S.D = 4 and mean = 2 and 

Key Answers:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1)d | 2)b | 3)a | 4)b | 5)a | 6)c | 7)c | 8)c | 9)c | 10)b |
| 11)a | 12)b | 13)c | 14)a | 15)a | 16)c | 17)c | 18)a | 19)d | 20)c |
| 21)a | 22)c | 23)b | 24)d | 25)d | 26)a | 27)c | 28)d | 29)c | 30)c |
| 31)a | 32)b | 33)d | 34)a | 35)a | 36)b | 37)c | 38)b | 39)b | 40)d |
| 41)c | 42)c | 43)d | 44)b | 45)c | 46)b | 47)d | 48)d | 49)c | 50)b |
| 51)a | 52)b | 53)c | 54)c | 55)a | 56)b | 57)b | 58)d | 59)a | 60)d |