MATHS

BOOKS - MBD MATHS (ODIA ENGLISH)

PERMUTATIONS AND COMBINATIONS

Question Bank

1. What is the total number of functions that can be defined from the set $\{1, 2\}$ to the set $\{1, 2, 3\}$?

View Text Solution

2. A die of six faces marked with the integers 1,2,3,4,5,6 one on each face is thrown twice in succession, what is the total number of outcomes thus obtained?

Watch Video Solution

3. Five cities A,B,C,D,E are connected to each other by straight roads. What is the total

number of such roads?

Watch Video Solution

4. What is the total number of different diagonals of a given pentagon?

Watch Video Solution

5. There are two routes joining city A to a city B and three routes joining B to another city C .

In how many ways can a person perform a journey from A to C ?

Watch Video Solution

6. How many different four letter words can be formed by using the four letters a,b, c, d, while the letter can be repeated ?

Watch Video Solution

7. What is the sum of all three digit numbers formed by using the digits 1,2,3,?

 Watch Video Solution

8. How many different words with two letters can be formed by suing the letters of the word JUNGLE, each containing one vowel and one consonant ?

 Watch Video Solution

9. There are four doors leading to the inside of a cinema hall. In how many ways can a person enter into it an come out ?

Watch Video Solution

10. Find the number of ways in which 5 different books can be arranged on a shelf.

Watch Video Solution

11. Compute P for $n = 8, r = 4$

Watch Video Solution

12. Compute P for $n = 10, r = 3$

Watch Video Solution

13. Compute P for $n = 11, r = 0$

Watch Video Solution

14. Compute the $\frac{10!}{5i}$

Watch Video Solution

15. Compute the $5! + 6!$

Watch Video Solution

16. Compute the $3! \times 4!$

Watch Video Solution

17. Compute the $\frac{1}{8!} + \frac{1}{9!} + \frac{1}{10!}$

Watch Video Solution

18. Compute the $2!^{3!}$

Watch Video Solution

19. Compute the $2^{3}!$

Watch Video Solution

20. Show that $2.6.10.\ldots\ldots$ to n factors $= \frac{(2n)!}{n!}$

Watch Video Solution

21. Find r if $P(20, r) = 13.\ P(20, r-1)$.

Watch Video Solution

22. Find $n$if$P(n, 4) = 12.\ P(n, 2)$

Watch Video Solution

23. If $P(n-1,3):P(n+1,3)=5:12$, Find n.

Watch Video Solution

24. Find m and n if $P(m+n,2)=56, P(m-n,2)=12$

View Text Solution

25. Show that $P(n, n) = P(n, n-1)$"For all positive integers."

Watch Video Solution

26. Show that $P(m, 1) + P(n, 1) = P(M + n, 1)$for all positive integers m, n.

Watch Video Solution

27. How many two digit even number of distinct digits can be formed with the digits 1,2,3,4,5?

 Watch Video Solution

28. How many four -digit even numbers with distinct digits can be formed out of digits 0,1,2,3,4,5,6 ?

 Watch Video Solution

29. How many integers between 100 and 1000(both inclusive)consists of distinct odd digits ?

Watch Video Solution

30. An unbiased die of six faces, market with the integers 1,2,3,4,5,6, one on each face, is thrown thrice in succession. What is the total number of outcomes ?

Watch Video Solution

31. Find the total number of ways in which the letters of the word PRESENTATION can be arranged.

 Watch Video Solution

32. Find the number of all 4-lettered words (not necessarily having meaning)that can be formed using the letters of the word BOOKLET.

 Watch Video Solution

33. In how many ways can 2 boys and 3 girls sit in a row so that no two girls sit side by side?

34. Five red marbles, four white marbles and three blue marbles of the same shape and size are placed in a row .Find the total number of possible arrangements.

35. How many of the functions Suppose A is a set of n elements and B is a set with m elements are one - one with (i)m=n ,(ii) m < n, (iii) m>n

Watch Video Solution

36. In how many ways can three men and three women sit at a round table so that no two men can occupy adjacent positions?

Watch Video Solution

37. Compute the $\hat{} \ 12C_3$

Watch Video Solution

38. Compute the $\hat{} \ 15C_{12}$

Watch Video Solution

39. Compute the ${}^9C_4 + {}^9C_5$

Watch Video Solution

40. Compute the ${}^{7}C_3 + {}^{6}C_4 + 6C_3$

Watch Video Solution

41. Compute the ${}^{8}C_0 + {}^{8}C_1 + \ldots\ldots + {}^{8}C_8$

Watch Video Solution

42. Solve ${}^{n}C_4 = {}^{n}C_{11}$,

Watch Video Solution

43. Solve ${}^{2n}C_3 : {}^{n}C_3 = 44 : 5$

Watch Video Solution

44. Find n and r if ${}^{n}P_r = 1680, {}^{n}C_r = 70.$

Watch Video Solution

45. How many diagonals can an n-gon (a polygon with n sides) have ?

Watch Video Solution

46. If a set A has n elements and another set B has m elements, what is the number of relations from A to B ?

Watch Video Solution

47. From five consonants and four vowels, how many words consist of three consonants and two vowels ?

Watch Video Solution

48. In how many ways can a committee of four gentlemen and three ladies be formed out of seven gentlemen and six ladies ?

 Watch Video Solution

49. A bag contains 4 black and 5 white balls out of which 6 balls are drawn arbitrarily. In how many ways can this be done? Find also the number of ways such that at least 3 black balls can be drawn .

Watch Video Solution

50. How many triangles can be drawn by joining the vertices of a decagon ?

Watch Video Solution

51. How many triangles can be drawn by joining the vertices and the centre of a regular hexagon ?

Watch Video Solution

52. Sixty points lie on a plane, out of which no three points are collinear. How many straight lines can be formed by joining pairs of points ?

Watch Video Solution

53. In how many ways can 10 boys and 10 girls sit in a row so that no two boys sit together ?

Watch Video Solution

54. In how many ways can six men and seven girls sit in a row so that the girls always sit together ?

Watch Video Solution

55. How many factors does 1155 have that are divisible by 3?

Watch Video Solution

56. How many factors does 210 have ?

Watch Video Solution

57. If n is a product of k distinct primes what is the total number of factors of n ?

Watch Video Solution

58. If m has the prime factor decomposition $P_1^{r_1}, P_2^{r_2} \ldots\ldots P_n^{r_n}$,what is the total number

of factors of m(excluding 1)?

Watch Video Solution

59. If 20! Were multiplied out, how many consecutive zeros would it have on the right?

Watch Video Solution

60. How many factors of 10,000 end with a 5 on the right ?

Watch Video Solution

61. A man has 6 friends. In how many ways can he invite two or more to a dinner party ?

Watch Video Solution

62. In how many ways can a student choose 5 courses out of 9 if 2 courses are compulsory ?

Watch Video Solution

63. In how many ways can a student choose five courses out of the courses.

$C_1, C_2, \ldots\ldots\ldots\ldots C_9 \text{if} C_1, C_2$ are compulsory and C_6, C_8 can not be taken together ?

Watch Video Solution

64. A cricket team consisting of 11 players is to be chosen from 8 batsmen and 5 bowlers. In how many ways can the team be chosen so as to include at least 3 bowlers ?

Watch Video Solution

65. There are n+r points on a plane out of which n points lie on a straight line L and out of the remaining r points that lie outside L, no three points are collinear. What is the number of straight lines that can be formed by joining pairs of there points ?

Watch Video Solution

66. There are 10 books in a shelf with different titles:five or these have red cover and others have green cover. In how many ways can these be arranged so that the red books are placed together ?

 Watch Video Solution