MULTIPLE CHOICE QUESTIONS (MCQ'S)

1. If p (n) is a proposition about a positive integer n such that p (n) is true for n = 1 and p (n) is true for n = k whenever P (n) is true for any positive integer n = K + 1, P (n) is true for every positive integer n, this principle is called principle of _____.
   (a) Mathematical induction (b) Mathematical deduction
   (c) logic used (d) None of these
2. For every positive integer n. $1 + 5 + 9 + \ldots\ldots + (4n - 3) =$ _____.
   (a) $n(2n - 1)$ (b) $(2n - 1)$ (c) $n - 1$ (d) n
3. If n is any positive integer then $n^2 > n + 3$ for
   (a) $n \geq 2$ (b) $n \geq 3$ (c) $n \leq 2$ (d) $n \leq 3$
4. If n is any positive integer then $2^n > 2(n + 1)$ is true for all
   (a) $n \leq 3$ (b) $n < 3$ (c) $n \geq 3$ (d) $n > 3$
5. Such case which fails the mathematical formula is called _____.
   (a) An example (b) Mathematical induction
   (c) Counter Example (d) None of these
6. for n = 2 the statement.
   $1 + 4 + 7 + \ldots\ldots + (3n - 2) = \frac{n}{2}(3n - 1)$
   (a) True (b) False
   (c) Both (d) None of these
7. For n = 2 the Statement $2 + 4 + 6 + 8 + \ldots\ldots 2(3^{n-1}) = 3^n - 1$ is
   (a) True (b) False
   (c) Both (d) None of these
8. For n = 1 the Statement $1 + 5 + 9 + \ldots\ldots + (4n - 3) = n(2n - 2)$ is
   (a) True (b) False
   (c) Both (d) None of these
9. For n = 4 the Statement $n^3 - n$ is divisible by 6 is _____.
   (a) True (b) False
   (c) Both (d) None of these

10. Sum of the first n natural numbers $1 + 2 + 3 + 4 + \ldots\ldots n = \sum n =$ _____
(a) $\frac{n(n+1)}{2}$ (b) $\frac{n(n+1)(2n+1)}{6}$
(c) $\frac{n^2(n+1)^2}{2}$ (d) n^2

11. Sum of the squares of first n natural numbers $1^2 + 2^2 + 3^2 + \ldots\ldots n^2 = \sum n^2 =$ _____.
(a) $\frac{n(n+1)}{2}$ (b) $\frac{n(n+1)(2n+1)}{6}$
(c) $\frac{n^2(n+1)^2}{4}$ (d) $n(n+1)$

12. Sum of the Cubes of the first n natural numbers.
$1^3 + 2^3 + 3^3 + \ldots\ldots + n^3 = \sum n^3 =$ _____
(a) $\frac{n(n+1)}{2}$ (b) $\frac{n(n+1)(2n+1)}{6}$
(c) $\frac{n^2(n+1)^2}{4}$ (d) $n(n+1)$

13. $6 + 7 + 8 + 9 + \ldots\ldots + 25 =$ _____.
(a) 310 (b) 325 (c) 340 (d) 500

14. $11^2 + 12^2 + 13^2 + 14^2 + \ldots\ldots + 25^2 =$ _____
(a) 5525 (b) 6295 (c) 5140 (d) 5000

15. $16^3 + 17^3 + 18^3 + \ldots\ldots + 25^3 =$ _____.
(a) 105625 (b) 14400 (c) 10000 (d) 91225

16. $1 + (1 + 2) + (1 + 2 + 3) + (1 + 2 + 3 + 4) + \ldots\ldots + (1 + 2 + 3 + 4 + \ldots\ldots n) =$ _____.
(a) $\frac{1}{6}n(n+1)(n+2)$ (b) $\frac{1}{6}(n+1)(n+2)(n+3)$
(c) $\frac{1}{6}(n+2)(n+3)(n+4)$ (d) None of these

17. Which number Satisfied the relation $2^n > n^2$.
(a) n = 5 (b) n = 4 (c) n = 3 (d) n = 2

18. If $(a^{2n} - b^{2n})$ is divisible by (a + b) when n = _____.
(a) $\frac{1}{3}$ (b) – 1 (c) –2 (d) 1

19. A powerful method of proof frequently used in Mathematics is _____.
(a) Binomial Theorem (b) Probability
(c) Inductive logic (d) Mathematical induction

20. $2 + 4 + 6 + \ldots\ldots + 2n =$ _____
(a) n (n – 1) (b) $\frac{n(n-1)}{2}$
(c) n (n + 1) (d) $\frac{n(n+1)}{2}$

21. If a proposition is true for n = K then it must be true for n = _____.
(a) $\frac{1}{K+1}$ (b) K –1 (c) $\frac{1}{K-1}$ (d) K + 1

22. _____ is a form of deductive reasoning.
(a) Probability (b) Binomial Theorem
(c) Mathematical induction (d) permutation

23. Mathematical induction is a form of _____.
(a) Inductive Reasoning (b) Probability
(c) Permutation (d) Deductive Reasoning

24. Some times a _____ is not true for the first few values of n and is true for all successive values after a certain stage.
(a) Proposition p (n) (b) Binomial theorem
(c) Probability (d) Permutation

25. $1 + 3 + 5 + \ldots\ldots + (2n - 1) =$ _____.
(a) $2n^2$ (b) n^2 (c) $\frac{n^2}{2}$ (d) n^3

26. $4 + 8 + 12 + \ldots\ldots + 4n =$ _____.
(a) 2n (n – 1) (b) n (n – 1) (c) 2n (n + 1) (d) $\frac{n(n-1)}{2}$

27. $\binom{n}{0} + \binom{n}{1} + \binom{n}{2} + \binom{n}{3} + \ldots\ldots\ldots + \binom{n}{n} =$ _____.
(a) 2^n (b) $\left(\frac{1}{2}\right)^n$ (c) $\left(1 + \frac{1}{2}\right)^n$ (d) 2^{n-1}

28. Find the sum of $1^2 + 2^2 + 3^2 + \ldots\ldots + 10^2$
(a) 55 (b) 45 (c) 65 (d) 385

29. Find sum of $1^2 + 2^2 + 3^2 + \ldots\ldots + 30^2$.
(a) 7473 (b) 4512 (c) 65223 (d) 7523

30. Find the sum of $1^2 + 2^2 + 3^2 + \ldots\ldots + 15^2$
(a) 1240 (b) 338350 (c) 64620 (d) 75000

31. Find the sum of $1^2 + 2^2 + 3^3 + \ldots\ldots + 100^2$
(a) 1240 (b) 338350 (c) 64620 (d) 75000

32. Find the sum of $1^2 + 2^2 + 3^2 + \ldots\ldots + 40^2$.
(a) 1240 (b) 338350 (c) 64620 (d) 75000

33. $1 + 5 + 9 + \ldots\ldots\ldots + [4n - 3] =$ _____.
(a) $n(n + 1)$ (b) $2n(n + 1)$ (c) $n(2n - 1)$ (d) n^2

34. for $n = 10$, the Statement $1 + 2 + 4 + \ldots\ldots\ldots + 2^{n-1} = 2^n - 1$ is.
(a) True (b) False
(c) Neither true or false (d) None of these

35. for $n = 1$, the Statement $1 + \frac{1}{2} + \frac{1}{4} + \ldots\ldots + \frac{1}{2^{n-1}} = 2\left[1 - \frac{1}{2^n}\right]$ is
(a) False (b) True
(c) Neither true nor false (d) None of these

36. for $n = 3$, the Statement $1 \times 3 + 2 \times 5 + 3 \times 7 + \ldots\ldots\ldots + n \times (2n + 1) = \frac{n(n + 1)(4n + 5)}{6}$ is
(a) True (b) False
(c) Neither true nor false (d) None of these

37. for $n = ,1$, the Statement $1 \times 2 + 2 \times 3 + 3 \times 4 + \ldots\ldots + n(n + 1) = \frac{n(n + 1)(n + 2)}{3}$ is _____.
(a) True (b) False
(c) Neither true nor false (d) None of these

38. for $n = 1$, the Statement $\frac{1}{1 \times 3} + \frac{1}{3 \times 5} + \frac{1}{5 \times 7} + \ldots\ldots\ldots + \frac{1}{(2n - 1)(2n + 1)} = \frac{n}{2n + 1}$ is _____.
(a) True (b) False
(c) Neither true nor false (d) None of these

39. for $n = 2$ the Statement $a + (a + d) + (a + 2d) + \ldots\ldots\ldots + [a + (n - 1)d] = \frac{n}{2}[2a + (n - 1)d]$ is _____.
(a) True (b) False
(c) Neither true nor false (d) None of these

40. for $n = 0$, the statement $1.1! + 2\,2! + 3\,3! + \ldots\ldots + n\,n! = (n + 1)! - 1$ is _____.
(a) True (b) False
(c) Neither true nor false (d) None of these

41. for $n = 1$, the Statement $\binom{3}{3} + \binom{4}{3} + \binom{5}{3} + \ldots\ldots\ldots + \binom{n+2}{3} = \binom{n+3}{4}$
(a) True (b) False
(c) Neither true nor false (d) None of these

42. for $n = 30$, the Statement "$n^2 + n$" is divisible by "2" is.
(a) True (b) False
(c) Neither true nor false (d) None of these

43. for $n = 3$ the Statement $5^n - 2^n$ divisible by "3" is.
(a) True (b) False
(c) Neither true or false (d) None of these

44. for $n = 2$, the Statement "$5^n - 1$" is divisible by "4" is
(a) False (b) True
(c) Neither true or false (d) None of these

45. for $n = 2$, the statement "$8 \times 10^n - 2$" is divisible by 6"is
(a) True (b) False
(c) Neither true nor false (d) None of these

46. for $n = 4$, the statement "$n^3 - n$" is divisible by 6" is
(a) True (b) False
(c) Neither true nor false (d) None of these

47. for $n = 1$, the statement $\frac{1}{3} + \frac{1}{3^2} + \ldots\ldots\ldots + \frac{1}{3^n} = \frac{1}{2}\left[1 - \frac{1}{3^n}\right]$ is
(a) True (b) False
(c) Neither true or false (d) None of these

48. for $n = 1$, the statement $1^3 + 3^3 + 5^3 + \ldots\ldots\ldots + (2n + 1)^3 = n^2(2n^2 + 1)$ is.
(a) True (b) False
(c) Neither true nor false (d) None of these

49. for $n = 1$, the Statement "$x + 1$" is a factor of "$x^{2n} - 1$" is
(a) True (b) False
(c) Neither true or false (d) None of these

50. for $n = 3$, the Statement "$x - y$" is a factor of "$x^n - y^n$" is.
(a) True (b) False
(c) Neither true or false (d) None of these

51. for $n = 2$, the Statement "$x + y$" is a factor of $x^{2n-1} + y^{2n-1}$ is
(a) True (b) False
(c) Neither true or false (d) None of these

52. _____ is a form of deductive reasoning in which conclusions are established beyond any doubt.
(a) Electronic Induction (b) Mathematical Induction
(c) Inductive logic (d) None of these

53. If $b^{n+1} = b.b^n$ and $b^1 = b$ then $b^m . b^n =$ _____.
(a) b^{mn} (b) b^{m-n}
(c) b^{m+n} (d) None of these

54. If $b^{n+1} = b.b^n$ and $b^1 = b$ then $(b)^{mn} = ?$
(a) b^{m+n} (b) b^{mn}
(c) $b^{m/n}$ (d) None of these

55. If $b^{n+1} = b.b^n$ and $b^1 = b$, then $(ab)^n = ?$
(a) $a^n.b^n$ (b) a^n
(c) b^n (d) None of these

56. If $b^{n+1} = b.b^n$, and $b^1 = b$, then $\left(\frac{a}{b}\right)^n = ?$
(a) $a^n b^n$ (b) $(ab)^n$
(c) $\frac{a^n}{b^n}$ (d) None of these

57. $a + ar + ar^2 + ar^3 + \ldots\ldots + ar^{n-1} = ?$
(a) $\frac{1-r}{1+r}$ (b) $\frac{a(1-r^n)}{1-r}$
(c) $a(1+r)$ (d) None of these

58. $\binom{n}{r-1} + \binom{n}{r} = ?$
(a) $(n+1)$ (b) $(n-1)$
(c) $\binom{n}{r-1}$ (d) None of these

59. Is $a^{2n} - b^{2n}$ divisible by $a + b$ for all $n \in N$?
(a) No (b) Yes
(c) Sometimes (d) None of these

60. $1 + 2 + 3 + 4 + \ldots\ldots 15 = ?$
(a) 12 (b) 220
(c) 120 (d) None of these

61. $1 + 2 + 3 + 4 + \ldots\ldots + 200 = ?$
(a) 20100 (b) 2010
(c) 20010 (d) None of these

62. $1^3 + 2^3 + 3^3 + \ldots\ldots + 20^3 =$ _____.
(a) 41400 (b) 44100
(c) 440400 (d) None of these

63. $1^3 + 2^3 + 3^3 + \ldots\ldots + 30^3 =$ _____.
(a) 212562 (b) 212265
(c) 216225 (d) None of these

64. $1 + 3 + 5 + 7 + \ldots\ldots + 15 =$ _____.
(a) 56 (b) 59
(c) 65 (d) None of these

65. If n is any positive integer then $3 + 6 + 9 + \ldots\ldots + 3n =$ _____.
(a) $\frac{3n(n+1)}{2}$ (b) $\frac{2n(n+1)}{3}$
(c) $\frac{3n(n+1)}{4}$ (d) $3n(n+1)$

66. If n is any positive integer then $4^n > 3^n + 4$ is true for all.
(a) $n > 2$ (b) $n \geq 2$ (c) $n < 2$ (d) $n \leq 2$

67. If n is any positive integer then $n! > 3^{n-1}$ is true for all
(a) $n \leq 3$ (b) $n < 3$ (c) $n \geq 5$ (d) $n > 3$

68. The inequality $n ! > 2^n - 1$ is valid if
(a) $n = 3$ (b) $n \leq 3$ (c) $n < 4$ (d) $n \geq 4$

69. If n is any positive integer then
$\frac{1}{1.3} + \frac{1}{3.5} + \frac{1}{5.7} + \ldots\ldots + \frac{1}{(2n-1)(2n+1)} =$
(a) $\frac{n}{2(n+1)}$ (b) $\frac{n}{n+2}$
(c) $\frac{2n}{n+1}$ (d) $\frac{n}{2n+1}$

70. If n is any positive integer then $\frac{1}{1.2} + \frac{1}{2.3} + \frac{1}{3.4} + \ldots\ldots + \frac{1}{n(n+1)} =$ _____.
(a) $\frac{n}{2(n+1)}$ (b) $\frac{n}{n+2}$ (c) $\frac{n}{n+1}$ (d) n!

71. If n is any positive integer then $2^1 + 2^2 + 2^3 + \ldots\ldots + 2^n =$ _____.
(a) $2(2^n - 1)$ (b) $2(2^{n-1} - 1)$
(c) $2(2^{n+1} - 1)$ (d) $2(3^n - 1)$

72. An algebraic expression consisting of two terms, connected by "+" or "–" sign is called a_____.
(a) Binomial (b) Trinomial
(c) Multinomial (d) None of these

73. $(a+b)^1$ is called _____.
(a) Binomial (b) Trinomial
(c) Multinomial (d) None of these

74. $(a+b)^2$ is called _____.
(a) Binomial (b) Trinomial
(c) Multinomial (d) None of these

75. $(a+b)^n$ is called _____.
(a) Binomial (b) Trinomial
(c) Multinomial (d) None of these

76. $a^n + \binom{n}{1} a^{n-1} b^1 + \ldots\ldots\ldots + b^n =$ _____.
(a) $(a-b)^n$ (b) $(a+b)^n$
(c) $(a+b)^{-n}$ (d) $(a-b)^{-n}$

77. $(a+b)^n = a^n + \binom{n}{1} a^{n-1} b^1 + \ldots\ldots\ldots + b^n$ then "n" belongs to _____.
(a) R (b) Z (c) N (d) Q

78. $a^n - \binom{n}{1} a^{n-1} b^1 + \ldots\ldots\ldots + b^n =$ _____ if n is even positive integer.
(a) $(a-b)^n$ (b) $(a+b)^n$ (c) $(a+b)^n$ (d) $(a-b)^{-n}$

79. The number of terms of binomial $(a+b)^n$ are _____ $\forall$ $n \in N$.
(a) n (b) n + 1 (c) n – 1 (d) n + 2

80. The number of terms of binomial $(x+y)^{\infty}$
(a) 98 (b) 99 (c) 100 (d) 101

81. $\binom{n}{0}, \binom{n}{1}, \binom{n}{2}, \ldots\ldots\ldots \binom{n}{n}$ are called _____ $\forall$ $n \in N$.
(a) Binomial theorem (b) Binomial Coefficient
(c) Binomial expression (d) None of these

82. The number of terms in the expression of $(a+x)^n$ is greater than it's index _____ $\forall$ $n \in Z^+$.
(a) 1 (b) 2 (c) 3 (d) 0

83. The Sum of exponents of "a" and "b" in each terms of the expansion of $(a+b)^n$ is equal to _____ $\forall$ $n \in N$.
(a) n + 1 (b) n (c) n – 1 (d) n + 2

84. In binomial theorem the exponent of "a" decreases from index to _____ $\forall$ $n \in N$
(a) Zero (b) 1
(c) 2 (d) None of these

85. In binomial theorem the exponent of "b" increases from zero to _____.
(a) index n (b) n + 1
(c) n – 1 (d) None of these

86. In the binomial expansion of $(a+b)^n$ then general term T_{r+1} = _____ $\forall$ $n \in N$.
(a) $\binom{n}{r+1} a^{n-r-1} b^{r+1}$ (b) $\binom{n}{r} a^{n-r} b^r$
(c) $\binom{n}{r-1} a^n b^r$ (d) None of these

87. In the expansion of $(a+b)^n$ $\forall$ $n \in N$, then the term $T_{r+1} = \binom{n}{r} a^{n-r} b^r$ is called _____.
(a) Binomial theorem (b) Binomial expansion
(c) General term (d) None of these

88. In general term formula of binomial theorem for positive index n, r belongs to _____.
(a) W (b) N (c) R (d) Q

89. In the expansion of $(a+b)^n$ if n is even then there is _____.
(a) is one Middle term (b) are two Middle term
(c) are three Middle term (d) None of these

90. In the expansion of $(a+b)^n$ if n is odd then there are _____.
(a) One Middle term (b) Two Middle terms
(c) three Middle term (d) None of these

91. In the expansion of $(a+b)^n$ if n is even then the Middle terms is _____.
(a) $\left(\frac{n}{2}\right)$th term (b) $\left(\frac{n+1}{2}\right)$th term
(c) $\left(\frac{n+2}{2}\right)$th term (d) $\left(\frac{n+3}{2}\right)$th term

92. In the expansion of $(a + b)^n$ if n is odd then the Middle terms are _____.
(a) $\left(\frac{n+1}{2}\right)$ th and $\left(\frac{n+2}{2}\right)$ th terms
(b) $\left(\frac{n+1}{2}\right)$ th and $\left(\frac{n+3}{2}\right)$ th terms
(c) $\left(\frac{n+2}{2}\right)$ th and $\left(\frac{n+3}{2}\right)$ th terms
(d) None of these

93. The Middle term in the expansion of $\left(x - \frac{20}{3}\right)^{10}$ is _____
(a) 5^{th} (b) 5^{th}
(c) 4^{th} (d) None of these

94. The middle term in the expansion of $\left(x - \frac{x^2}{2}\right)^{14}$ is _____.
(a) 7^{th} (b) 9^{th} (c) 8^{th} (d) 6^{th}

95. The middle term in the expansion of $\left(x - \frac{1}{x}\right)^{2n}$ is _____ term.
(a) (n + 1)th (b) nth (c) (n − 1)th (d) (n + 2)th

96. The middle term in the expansion of $\left(x - \frac{1}{x}\right)^{2n}$ is _____.
(a) ${}^{2n}C_{n+1}\, x^{n-1}$, $\frac{1}{x^{n+1}}(-1)^n$ (b) ${}^{2n}C_{n+1}\, x^{n-2}$
(c) $(-1)^n\, {}^{2n}C_n$ (d) None of these

97. The two middle terms of $\left(x^3 + \frac{1}{x^2}\right)^7$ are _____ terms.
(a) 3rd and 4^{th} (b) 4^{th} and 5^{th}
(c) 5^{th} and Sixth (d) None of these

98. The two middle terms of $\left(2x - \frac{x}{4}\right)^9$ are _____ terms.
(a) 3rd and 4^{th} (b) 4^{th} and 5^{th}
(c) 5^{th} and 6^{th} (d) None of these

99. The two middle terms of $\left(x - \frac{1}{x}\right)^{2n+1}$ are _____ terms.
(a) nth and (n + 1)th (b) (n + 1)th and (n + 2)th
(c) (n + 2) th and (n + 3)th (d) (n − 1)th and nth

100. The 5^{th} term of $\left(\frac{2x}{3y} - \frac{3y}{2x}\right)^7$ is _____.
(a) positive (b) Negative
(c) Both (c) None of these

101. The 6^{th} term of $\left(\frac{xy^2}{2a} - \frac{4a}{x^2y}\right)^8$ is _____.
(a) positive (b) Negative
(c) Both (d) None of these

102. The middle term of $\left(\frac{a}{y} - \frac{y}{a}\right)^{12}$ is _____ $\forall$ a, y $\in R^+$.
(a) positive (b) Negative
(c) Both (d) None of these

103. The middle term of $\left(\frac{a}{x} - \sqrt{x}\right)^{10}$ is _____.
(a) Positive (b) Negative
(c) Both (d) None of these

104. The Seventh terms of the expansion of $(a + b)^n$ is _____.
(a) $\binom{n}{7} a^{n-7} b^7$ (b) $\binom{n}{6} a^{n-6} b^6$
(c) $\binom{n}{8} a^{n-8} b^8$ (d) None of these

105. $\left(\frac{a}{3} - \frac{b}{2}\right)^{12}$, then the 9^{th} term of expansion is _____.
(a) $\binom{12}{8}\left(\frac{a}{3}\right)^4\left(\frac{b}{2}\right)^8$ (b) $\binom{12}{8}\left(\frac{a}{3}\right)^8\left(\frac{b}{2}\right)^4$
(c) $\binom{12}{9}\left(\frac{a}{3}\right)^3\left(-\frac{b}{2}\right)^9$ (d) $\binom{12}{9}\left(\frac{a}{3}\right)^9\left(-\frac{b}{2}\right)^3$

106. The term $\binom{9}{r} \frac{2^{9-r}}{3} x^{9-3r}$ is independent of x then r = _____.
(a) 1 (b) 2 (c) 3 (d) 4

107. The term $\binom{15}{r}(-1)^r x^{15-3r}$ is independent of x then r = _____.
(a) 2 (b) 3 (c) 4 (d) 5

108. The term $\binom{7}{r}(2x)^{7-r}\left(\frac{-1}{2}\right)^r$ involving x^3 then r = ____
(a) 7 (b) 3 (c) 4 (d) 2

109. The term $\binom{10}{r}(x^2)^{10-r}\frac{(-1)^r}{x^{3r}}$ involving x^{10} then r = ____
(a) 2 (b) 5 (c) 3 (d) 2

110. The sum of binomial Coefficients of order n is ____.
(a) n + 1 (b) 2^n (c) 2^{n-1} (d) 2^{n+1}

111. $\binom{n}{0}+\binom{n}{1}+\ldots\ldots\ldots+\binom{n}{n}=$ ____ $\forall\, n \in Z$.
(a) n + 1 (b) 2^n (c) 2^{n-1} (d) 2^{n+1}

112. The Sum of even Coefficients of binomial expansion is ____.
(a) n (b) 2^n (c) 2^{n-1} (d) 2^{n+1}

113. The Sum of odd Coefficients of a binomial expansion is ____.
(a) n (b) 2^n (c) 2^{n-1} (d) 2^{n+1}

114. Sum of Coefficients of binomial $(a + b)^8$ is ____.
(a) 2^8 (b) 2^7 (c) 2^9 (d) 2^6

115. $\binom{n}{1}+\binom{n}{3}+\binom{n}{5}+\ldots\ldots\ldots+\binom{n}{n-1}=$ ____.
(a) 2^n (b) 2^{n+1} (c) 2^{n-1} (d) (n + 1)

116. $\binom{n}{1}+\binom{n}{3}+\binom{n}{5}+\ldots\ldots\ldots+\binom{n}{n-1}$ are called Sum of ____ of a binomial.
(a) Odd Coefficients (b) Even Coefficients
(c) Binomial Coefficients (d) None of these

117. $\binom{n}{0}+\binom{n}{2}+\binom{n}{4}+\ldots\ldots\ldots+\binom{n}{n}=$ ____.
(a) 2^n (b) 2^{n+1} (c) 2^{n-1} (d) (n+1)

118. $\binom{n}{0}, \binom{n}{2}, \binom{n}{4}, \ldots\ldots\ldots \binom{n}{n}$ are called ____.
(a) Odd Coefficients (b) Even Coefficients
(c) Binomial Coefficients (d) None of these

119. Sum of odd Coefficients and even Coefficients of binomial = ____.
(a) 2^n (b) 2^{n+1} (c) 2^{n-1} (d) n

120. $\binom{n}{0}, \binom{n}{1}, \binom{n}{2}, \ldots\ldots\ldots \binom{n}{n}$ are meaningless when "n" is ____.
(a) Positive (b) Negative integer
(c) Negative or a fraction (d) None of these

121. $(1+x)^n = 1 + nx + \frac{n(n-1)}{2!}x^2 + \ldots\ldots\ldots \forall\, n \in R$ then.
(a) $|x| > 1$ (b) $|x| \geq 1$ (c) $|x| \leq 1$ (d) $|x| < 1$

122. $1 - x + x^2 - x^3 + \ldots\ldots\ldots + (-1)^r x + \ldots\ldots\ldots |x| < 1$.
(a) $(1+x)^{-1}$ or $\frac{1}{1+x}$ (b) $(1-x)^{-1}$
(c) $(1+x)^{-2}$ (d) None of these

123. ____ $= 1 + x + x^2 + x^3 + \ldots\ldots\ldots + x^r + \ldots\ldots\ldots$
(a) $(1-x)^{-1}$ (b) $(1+x)^{-1}$ (c) $(1+x)^{-2}$ (d) $(1-x)^{-2}$

124. $T_{r+1} = \frac{n(n-1)(n-2)\ldots\ldots(n-r+1)}{r!}x^r$ is called ____.
(a) Binomial theorem (b) rth term
(c) General term (d) None of these

125. If $n < 0$ and $|x| < 1$ then number of terms of $(1 + x)^n$ is ____.
(a) n (b) n + 1
(c) n − 1 (d) Infinite

126. If n is not a positive integer then the expansion $(1 + x)^n$ is valid for ____.
(a) $1 < x < 2$ (b) $-1 < x < 1$
(c) $1 < x < 2$ (d) None of these

127. If $|x| < 1$ then the expansion of $\frac{1}{\sqrt[3]{1-x^2}}$ upto two terms.
(a) $1 - \frac{1}{3}x^2$ (b) $1 - \frac{1}{3}x^{-2/3}$ (c) $1 + \frac{1}{3}x^2$ (d) $1 + \frac{1}{3}x^{-2/3}$

128. If number of terms of binomial $(a + b)^n$ is 14 then n = ____.
(a) 12 (b) 11 (c) 14 (d) 13

129. If number of terms of binomial is 15 then middle term of binomial is ____.
(a) 7^{th} term (b) 8^{th} term (c) 9^{th} term (d) 11^{th} term

130. According to pascal's Rule $\binom{n}{r-1}+\binom{n}{r}=$ _____.
(a) $\binom{n-1}{r}$ (b) $\binom{r-1}{n}$ (c) $\binom{1-n}{r}$ (d) $\binom{n+1}{r}$

131. In expansion of $(a+b)^n$, the exponent "n" is also known as _____.
(a) Index (b) Factorial
(c) Radical Sign (d) Power

132. In expansion of $(a+b)^n$ the Coefficient of a^n = _____.
(a) $\binom{n+1}{0}$ (b) $\binom{n}{n}$ (c) $\binom{n-1}{1}$ (d) $\binom{n-1}{0}$

133. In $(a+b)^n$ if n is even, say n = 2K then the number of terms is _____.
(a) 2K (b) 2K + 1 (c) 2K − 1 (d) 2K − 2

134. In $(a+b)^n$ if n is odd then the number of term is _____.
(a) odd (b) prime (c) Irrational (d) Even

135. In the expansion of $(a+b)^n$ the coefficient of terms equidistant from the beginning and end are _____.
(a) Unequal (b) Irrational (c) Rational (d) Equal

136. In general most of the infinite series can be summed up very quickly by identifying them with _____ expansion.
(a) Binomial (b) Trinomial
(c) Infinite (d) Arithmetic Mean

137. Binomial theorem was developed by _____.
(a) Al-Razi (b) Newton
(c) Umer Khayam (d) None of these

138. In the expansion of $(a-2b)^3$ the coefficient of b^2 is ____.
(a) 12a (b) $-2a^2$ (c) $-8a$ (d) $-4a$

139. The Coefficient of the last term in $(a-b)^5$ is ____.
(a) 1 (b) −1
(c) 0 (d) None of these

140. $(1+2x)^4$ = _____.
(a) $1-8x+24x^2-32x^3+16x^4$
(b) $1+4x+6x^2+4x^3+x^4$
(c) $1-4x+6x^2-4x^3+x^4$
(d) $1+8x+24x^2+32x^3+16x^4$

141. In the expansion of $(a+b)^7$ the 2^{nd} term is _____.
(a) a^7 (b) $7a^6b$
(c) $7ab^6$ (d) None of these

142. The number of terms in the binomial expansion is _____.
(a) Equal to the exponent (b) One less the exponent
(c) one more than the expansion
(d) two less than the exponent

143. If the exponent in the binomial expansion is 6, then the middle term is _____.
(a) 2^{nd} term (b) 3^{rd} term (c) 4^{th} term (d) 5^{th} term

144. The sum of the Coefficients in the expansion $(1+x)^n$ is equal to the number of elements of the power Set of a set with elements _____.
(a) n^2 (b) 2^{n-2} (c) 2^{n-1} (d) n

145. The sum of the even Coefficients and the sum of the odd Coefficients in the expansion $(1+x)^n$ are _____.
(a) Not Same (b) Same
(c) Integer (d) Natural number

146. The general term in the expansion of $(a+x)^n$ is _____.
(a) (r − 1)th term (b) rth term
(c) (r + 1)th term (d) None of these

147. $(1+x)^n = 1+nx+\frac{n(n-1)}{2!}x^2+\frac{n(n-1)(n-2)}{3!}x^3+$ ..... is
(a) Binomial Series (b) Binomial theorem
(c) Taylor Series (d) None of these

148. The expansion of $\left(1+\frac{x}{2}\right)^{3/2}$ is
(a) Binomial theorem (b) Binomial Series
(c) Taylor Series (d) None of these

149. If $|x|<1$, then the expansion of $(1-x)^{1/2}$ up to two terms is _____.
(a) $1+\frac{1}{2}x$ (b) $1-\frac{1}{2}x$ (c) $1-x$ (d) $1+x$

150. The expansion of $(1+2x)^{-1}$ is valid if
(a) $|x|<\frac{1}{2}$ (b) $|x|<1$ (c) $|x|<2$ (d) $|x|<3$

151. The expansion of $(1-3x)^{2/3}$ is valid if.
(a) $|x|<\frac{1}{3}$ (b) $|x|<\frac{1}{2}$ (c) $|x|<\frac{2}{3}$ (d) $|x|<1$

152. Second term in the expansion of $(1-2x)^{\frac{1}{3}}$ is _____.
(a) $\frac{x}{2}$ (b) $\frac{x}{3}$ (c) $\frac{2x}{3}$ (d) $-\frac{2x}{3}$

153. The expansion of $(1-5x)^{\frac{1}{5}}$ is valid if _____.
(a) $|x| < \frac{1}{5}$ (b) $|x| \leq \frac{1}{5}$ (c) $|x| \leq 0$ (d) $|x| \geq \frac{1}{5}$

154. If number of terms of binomial is 15 then middle term of binomial is _____.
(a) 7^{th} term (b) 8^{th} term (c) 9^{th} term (d) 11^{th} term

155. The term $\binom{5}{r} y^{10-2r} \frac{a^{3r}}{y^r}$ involving "y" then r = _____.
(a) $\frac{9}{2}$ (b) 4 (c) 3 (d) 2

156. 1^{st} four terms of the expansion $(1-x)^{-2}$ are _____.
(a) $1 + 2x + 3x^2 + 4x^3$ (b) $12x - 3x^2 - 4x^3$
(c) $1 + 2x - 3x^2 + 4x^3$ (d) None of these

157. The expansion $(1+x)^{-3}$ holds when
(a) $|x| > 1$ (b) $|x| < 1$
(c) $|x| = 1$ (d) None of these

158. $(a+x)^n = \sum_{r=0}^{n} \binom{n}{r} a^{n-r} x^r$ where a and x are _____.
(a) Natural number (b) Whole Number
(c) Complex number (d) Real numbers

159. If the Coefficient of rth term in the expansion of $(1+x)^{10}$ Coefficient of (r + 2)th term, then find the value of r.
(a) 5 (b) 10 (c) 11 (d) 6

160. The pascal's triangle for n = 2 is.
(a) 1 1 / 1 0 1 (b) 1 1 / 1 3 1 (c) 1 1 / 1 2 1 (d) 1 1 / 2 2 2

161. The pascal's triangle for n = 3 is
(a) 1 1 / 1 0 1 / 1 1 1 1 (b) 1 1 / 1 2 1 / 1 1 1 1 (c) 1 1 / 2 2 2 / 3 3 3 3 (d) 1 1 / 1 2 1 / 1 3 3 1

162. In order to calculate $(2.02)^4$ by mean of binomial theorem we write it.
(a) $(2+0.02)^4$ (b) $(2-0.02)^4$
(c) $(2+0.2)^4$ (d) $(2+0.04)^2$

163. In order to calculate $(0.97)^3$ by mean of binomial theorem we write it as _____.
(a) $(1-0.03)^2$ (b) $(1+0.03)^3$
(c) $(2-1.03)^4$ (d) $(1-0.03)^3$

164. 1^{st} term in the expansion of $\left(\sqrt{\frac{a}{x}} - \sqrt{\frac{x}{a}}\right)^6$ is _____.
(a) $\binom{6}{1}\left(\sqrt{\frac{a}{x}}\right)^0\left(-\sqrt{\frac{x}{a}}\right)^6$
(b) $\binom{6}{0}\left(\sqrt{\frac{a}{x}}\right)^6$ (c) $\binom{6}{0}\left(-\sqrt{\frac{x}{a}}\right)^6$
(d) $\binom{6}{1}\left(\sqrt{\frac{a}{x}}\right)^6$

165. The sum of odd Coefficient of a binomial expansion equal to the sum of it's _____.
(a) Odd Coefficient (b) Even Coefficient
(c) Index (d) Power number

166. If $\binom{10}{r} \frac{1}{2r} \cdot x^{(5-5r/2)}$ is free of x then r = _____.
(a) 10 (b) 2 (c) $\frac{25}{2}$ (d) 4

167. The (r + 1)th term in the expansion of $(a+x)^n$ is _____.
(a) $\binom{n}{r-1} a^{n-r} x^r$ (b) $\binom{n}{r+1} a^{n-r} x^r$
(c) $\binom{n}{r} a^r x^{n-r}$ (d) $\binom{n}{r} a^{n-r} x^r$

168. The rth term in the expansion of $(a+x)^n$ is _____.
(a) $\binom{n}{r-1} a^{n-r-1} x^{r-1}$ (b) $\binom{n}{r-1} a^{n-r+1} x^{r-1}$
(c) $\binom{n}{r-1} a^r x^{n-r}$ (d) None of these

169. Second term in expansion of $(a+2b)^5$ is _____.
(a) $\binom{5}{0} a^5$ (b) $\binom{5}{1} a^4 (2b)$
(c) $\binom{5}{2} a^3 (2b)^2$ (d) $\binom{5}{3} a^2 (2b^3)$

170. Second term in the expansion of $\left(2a-\frac{x}{a}\right)^7$ is _____.

(a) $7(2a)^6$ (b) $7(2a)^6\left(\frac{-x}{a}\right)^2$

(c) $7(2a)^5\left(\frac{-x}{a}\right)^2$ (d) $7(2a)^6\left(\frac{-x}{a}\right)$

171. 8^{th} term in the expansion of $\left(\frac{x}{2y}-\frac{2y}{x}\right)^8$ is _____.

(a) $\binom{8}{7}\left(\frac{x}{2y}\right)\left(\frac{-2y}{x}\right)^7$ (b) $\binom{8}{8}\left(\frac{x}{2y}\right)^0\left(\frac{-2y}{x}\right)^8$

(c) $\binom{8}{8}\left(\frac{-2y}{x}\right)^9$ (d) $\binom{8}{7}\left(\frac{x}{2y}\right)^0\left(\frac{-2y}{x}\right)^8$

Answers

1.	a	2.	a	3.	b	4.	c	5.	c
6.	b	7.	b	8.	a	9.	a	10.	a
11.	b	12.	c	13.	a	14.	c	15.	d
16.	c	17.	a	18.	d	19.	d	20.	c
21.	d	22.	c	23.	c	24.	d	25.	b
26.	c	27.	a	28.	d	29.	a	30.	a
31.	b	32.	c	33.	c	34.	a	35.	b
36.	b	37.	a	38.	a	39.	b	40.	a
41.	a	42.	a	43.	a	44.	b	45.	b
46.	a	47.	a	48.	b	49.	a	50.	a
51.	b	52.	b	53.	c	54.	b	55.	a
56.	c	57.	b	58.	c	59.	b	60.	c
61.	a	62.	b	63.	c	64.	c	65.	a
66.	b	67.	c	68.	d	69.	d	70.	c
71.	a	72.	a	73.	a	74.	a	75.	a
76.	b	77.	c	78.	a	79.	b	80.	c
81.	b	82.	a	83.	b	84.	a	85.	a
86.	b	87.	c	88.	a	89.	a	90.	b
91.	c	92.	b	93.	b	94.	c	95.	a
96.	c	97.	b	98.	c	99.	b	100.	a
101.	b	102.	a	103.	b	104.	b	105.	a
106.	c	107.	d	108.	c	109.	a	110.	b

111.	b	112.	c	113.	c	114.	a	115.	c
116.	a	117.	c	118.	b	119.	a	120.	c
121.	d	122.	a	123.	a	124.	c	125.	d
126.	b	127.	c	128.	d	129.	b	130.	d
131.	a	132.	b	133.	b	134.	d	135.	d
136.	a	137.	c	138.	a	139.	b	140.	d
141.	b	142.	c	143.	c	144.	d	145.	b
146.	c	147.	a	148.	b	149.	b	150.	a
151.	a	152.	d	153.	a	154.	b	155.	c
156.	a	157.	b	158.	d	159.	a	160.	c
161.	d	162.	a	163.	d	164.	b	165.	b
166.	b	167.	d	168.	b	169.	b	170.	d
171.	a								