11th chapter 5 - 1 mark

11th Standard

Maths

Reg.No. :

Exam Time : 01:05:00 Hrs

Total Marks : 65

65 x 1 = 65

1) If a, 8, b are in AP, a, 4, b are in GP, and if a, x, b are in HP then x is

(a) 2 (b) 1 (c) 4 (d) 16

2) The sequence $\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}+\sqrt{2}}, \frac{1}{\sqrt{3}+2\sqrt{2}}$...from an

(a) AP (b) GP (c) HP (d) AGP

3) The HM of two positive numbers whose AM and GM are 16,8 respectively is

(a) 10 (b) 6 (c) 5 (d) 4

4) If Sn denotes the sum of n terms of an AP whose common difference is d, the value of $S_n-2S_{n-1}+S_{n-2}$ is

(a) 0 (b) 2d (c) 4d (d) d^2

5) The remainder when 38^{15} is divided by 13 is

(a) 12 (b) 1 (c) 11 (d) 5

6) The nth term of the sequence 1, 2, 4, 7, 11,... is

(a) n^3+3n^2+2n (b) n^3-3n^2+3n (c) $\frac{n(n+1)(n+2)}{3}$ (d) $\frac{n^2-n+2}{2}$

7) The sum up to n terms of the series $\frac{1}{\sqrt{1}+\sqrt{3}}+\frac{1}{\sqrt{1}+\sqrt{5}}+\frac{1}{\sqrt{5}+\sqrt{7}}+$ ....is

(a) $\sqrt{2n+1}$ (b) $\frac{\sqrt{2n+1}}{2}$ (c) $\sqrt{2n+1}-1$ (d) $\frac{\sqrt{2n+1}-1}{2}$

8) The n^{th} term of the sequence $\frac{1}{2}, \frac{3}{4}, \frac{7}{8}, \frac{15}{6}$.+.....is

(a) 2^n-n-1 (b) $1-2^n$ (c) $2^{-n}+n-1$ (d) 2^{n-1}

9) The sum up to n terms of the series $\sqrt{2}+\sqrt{8}+\sqrt{18}+\sqrt{32}+$ .....is

(a) $\frac{n(n+1)}{2}$ (b) 2n(n+) (c) $\frac{n(n+1)}{\sqrt{2}}$ (d) 1

10) The value of the series $\frac{1}{2}+\frac{7}{4}+\frac{13}{8}+\frac{19}{6}+$ .....is

(a) 14 (b) 7 (c) 4 (d) 6

11) The sum of an infinite GP is 18. If the first term is 6, the common ratio is

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{6}$ (d) $\frac{3}{4}$

12) The coefficient of x^5 in the series e^{-2x} is

(a) $\frac{2}{3}$ (b) $\frac{2}{3}$ (c) $\frac{-4}{15}$ (d) $\frac{4}{15}$

13) The value of $\frac{1}{2!}+\frac{1}{4!}+\frac{1}{6!}+....is$

(a) $\frac{e^2+1}{2e}$ (b) $\frac{(e+1)^2}{2e}$ (c) $\frac{(e-1)^2}{2e}$ (d) $\frac{e^2+1}{2e}$

14) The value of $1-\frac{1}{2}\left(\frac{2}{3}\right)+\frac{1}{3}\left(\frac{2}{3}\right)^2-\frac{1}{4}\left(\frac{2}{3}\right)^2+....is$

(a) $log\left(\frac{5}{3}\right)$ (b) $\frac{3}{2}log\left(\frac{5}{3}\right)$ (c) $\frac{5}{3}log\left(\frac{5}{3}\right)$ (d) $\frac{2}{3}log\left(\frac{2}{3}\right)$

15) If $\frac{T_2}{T_3}$ is the expansion of $(a+b)^n$ and $\frac{T_3}{T_4}$ is the expansion of $(a+b)^{n+3}$ are equal, then n=

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

16) The Co-efficient of x^{-17} in { \left({ x }^{ 4 }-\frac { 1 }{ { x }^{ 3 } } \right) }^{ 15 }is

(a) 1365 (b) -1365 (c) 3003 (d) -3003

17) If the sum of n terms of an A. P. be $3n^2$ - n and its common difference is 6, then its first term is

(a) 2 (b) 3 (c) 1 (d) 4

18) The term without x in $\left(2x-\frac{1}{2x^{2}} \right)^{12}$ is

(a) 495 (b) -495 (c) -7920 (d) 7920

19) The first and last term of an A.P.are 1 and 11.If the sum of its terms is 36, then the number of terms will be

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

20) If the first, second and last term of an A. P. are a, b and 2a respectively, then its sum is

(a) $\frac{ab}{2(b-a)}$ (b) $\frac{ab}{b-a}$ (c) $\frac{3ab}{2(b-a)}$ (d) none of these

21) If in an infinite G. P., first term is equal to 10 times the sum of all successive terms, then its common ratio is

(a) $\frac{1}{10}$ (b) $\frac{1}{11}$ (c) $\frac{1}{9}$ (d) $\frac{1}{20}$

22) The nth term of a G. Pis 128 and the sum of its n terms is 225. If its common ratio is 2, then its first term is

(a) 1 (b) 3 (c) 8 (d) none of these

23) The value of ${9}^{\frac{1}{3}}\,{9}^{\frac{1}{9}}{9}^{\frac{1}{27}}\,\infty$ is

(a) 1 (b) 3 (c) 9 (d) none of these

24) The sum of the series $\frac{1}{\log_{2}4}+\frac{1}{\log_{4}4}+\frac{1}{\log_{8}4}+.....+\frac{1}{\log_{2^n}4}$ is

(a) $\frac{n(n+1)}{2}$ (b) $\frac{n(n+1)(2n+1)}{2}$ (c) $\frac{n(n+1)}{4}$ (d) none of these

25) If $\Sigma n=210$ then $\Sigma n^{2}=$

(a) 2870 (b) 2160 (c) 2970 (d) none of these

26) Sum of n terms of the series $\sqrt{2}+\sqrt{8}+\sqrt{18}+\sqrt{32}$ ..is

(a) $\frac{n(n+1)}{2}$ (b) 2n(n+1) (c) $\frac{n(n+1)}{\sqrt{2}}$ (d) 1

27) The series $1+4x+8x^2+\frac{32}{3}x^{3}+.....+\infty$ is

(a) e^x (b) e^{4x} (c) e^{2x} (d) e^{8x}

28) The series for $\log\left(\frac{1+x}{1-x}\right)$ is

(a) $x+\frac{x^{3}}{3}+\frac{x^{5}}{5}+...+\infty$ (b) $2\left[x+\frac{x^{3}}{3}+\frac{x^{5}}{5}+...+\infty\right]$ (c) $\frac{x^{2}}{2}+\frac{x^{4}}{4}+\frac{x^{6}}{6}+...+\infty$ (d) $2\left[\frac{x^{2}}{2}+\frac{x^{4}}{4}+\frac{x^{6}}{6}+...+\infty\right]$

29) The Co-efficient of x^3 in $\sqrt{\frac{1-x}{1+x}}\,\left| x \right| < 1$ is

(a) $\frac{1}{2}$ (b) $\frac{3}{8}$ (c) $\frac{-3}{8}$ (d) $\frac{-1}{2}$

30) The value of 2 + 4 + 6 + + 2n is

(a) $\frac{n\left(n-1\right)}{2}$ (b) $\frac{n\left(n+1\right)}{2}$ (c) $\frac{2n\left(2n-1\right)}{2}$ (d) n(n + 1)

31) The coefficient of x^6 in $(2 + 2x)^{10}$ is

(a) ${}^{10}C_6$ (b) 2^6 (c) ${}^{10}C_6 2^6$ (d) ${}^{10}C_6 2^{10}$

32) The coefficient of x^8y^{12} in the expansion of $(2x + 3y)^{20}$ is

(a) 0 (b) 28312 (c) $2^8 3^{12} + 2^{12} 3^8$ (d) ${}^{20}C_8\, 2^8\, 3^{12}$

33) If ${}^nC_{10} > {}^nC_r$ for all possible F, then a value of n is

(a) 10 (b) 21 (c) 19 (d) 20

34) If a is the arithmetic mean and g is the geometric mean of two numbers, then

(a) $a \le g$ (b) $a \ge g$ (c) a = g (d) a > g

35) If $(1 + x^2)^2 (1 + x)^n = a_0 + a_1x + a_2x^2 + ... + x^{n+4}$ and if a_0, a_1, a_2 are in AP, then n is

(a) 1 (b) 2 (c) 3 (d) 4

36) With usual notation $C_0 + C_2 + C_4 + ...$ is:

(a) 2^{n-1} (b) 2^n (c) 2^{n+1} (d) 2^{n+2}

37) In the expansion of $(2x + 3)^5$ the coefficient of x^2 is:

(a) 720 (b) 1080 (c) 810 (d) 5

38) In the expansion of $(1 + x)^{22}$ which term is the middle term:

(a) T_{11} and T_{12} (b) T_{11} (c) T_{12} (d) T_{13}

39) AM, GM, HM denote the Arithmetic mean, Geometric mean and Harmonic mean respectively the relationship between this is:

(a) AM < GM < HM (b) AM ≤ GM ≤ HM (c) AM > GM > HM (d) AM≥GM≥HM

40) In the series $\frac{1}{1+\sqrt 2}+\frac{1}{\sqrt 2+\sqrt 3}+\frac{1}{\sqrt 3+\sqrt 4}+...$ some of first 24 number is:
(a) 4 (b) $\sqrt 24$ (c) $\frac{1}{\sqrt 24}$ (d) $\frac{1}{\sqrt 25-\sqrt 24}$

41) $1 - 2x + 3x^2 - 4x^3 + ...$, $|x|< 1$ is:
(a) $(1-x)^{-2}$ (b) $(1+x)^{-2}$ (c) $(1-x)^2$ (d) $(1+x)^2$

42) $\frac{1}{1!}+\frac{1}{3!}+\frac{1}{5!}+...$is:
(a) $\frac{e^{-1}}{2}$ (b) $\frac{e+e^{-1}}{2}$ (c) $\frac{e-e^{-1}}{2}$ (d) none of these

43) $\sqrt \frac{1-2x}{1+2x}$ is approximately equal to:
(a) $1- 2x-x^2$ (b) $1 + 2x+ x^2$ (c) $1+ 2x$ (d) $1-2x+x^2$

44) Expansion of $\log(\sqrt \frac{1+x}{1-x})$ is:
(a) $x+\frac{x^3}{3}+\frac{x^5}{5}+...$ (b) $1.\frac{x^2}{2}+\frac{x^4}{4}+...$ (c) $1-x+\frac{x^2}{2}+\frac{x^3}{5}+...$ (d) $x-\frac{x^2}{3}+\frac{x^3}{3}+...$

45) Thye value of $1-\frac{1}{2}(\frac{3}{4})+\frac{1}{3}(\frac{3}{4})^2-\frac{1}{4}(\frac{3}{4})^3+...$is:
(a) $\frac{3}{4}\log(\frac{7}{4})$ (b) $\frac{4}{3}\log(\frac{7}{4})$ (c) $\frac{1}{3}\log(\frac{7}{4})$ (d) $\frac{4}{3}\log(\frac{4}{7})$

46) The coefficient of a^5 in the expansion of $(3a + 5b)^5$ is
(a) 1 (b) 243 (c) 6750 (d) 9375

47) The coefficient of x^{32} in the expansion of $(x^4-\frac{1}{x^3})^{15}$
(a) $15C_4$ (b) $15C_3$ (c) $15C_5$ (d) $15C_6$

48) The middle term in the expansion of is $(x- \frac{2}{x})^{12}$ is
(a) $12C_6$ (b) $12C_6 2^6$ (c) $12C_7$ (d) $12C_6 2^7$

49) The sum of the series $C_0^2- C_1^2 + C_2^2 .....+ (- 1)^n C^2_n$ where n is an even integer is
(a) $2nC_n$ (b) $(-1)^n 2nC_n$ (c) $(-1)^n 2nC_{n-1}$ (d) $(-1)^{n/2} nC_{n/2}$

50) The ratio of the coefficient of x^{15} to the term independent of x in $[x^2+(\frac{2}{x})]^{15}$ is
(a) 1:16 (b) 1:8 (c) 1:32 (d) 1:64

51) $3 \log 2 + \frac{1}{4}-\frac{1}{2}(\frac{1}{4})^2+\frac{1}{3}(\frac{1}{4})^2+ . . . =$
(a) log8 (b) log10 (c) log2 (d) log4

52) $\left(1+\frac{1}{\lfloor2}+\frac{1}{\lfloor4}+\frac{1}{\lfloor6}+...\right)^2-\left(1+\frac{1}{\lfloor3}+\frac{1}{\lfloor5}+\frac{1}{\lfloor7}+...\right)^2=$
(a) 1 (b) 2 (c) e (d) 2e

53) $\frac{2}{1!}+\frac{4}{3!}+\frac{6}{5!}+. . .\infty =$
(a) e (b) 2e (c) $\frac{1}{e}$ (d) e^2

54) The larget coefficients in the expansion of $(1 + X)^{24}$ is
(a) $24C_{24}$ (b) $24C_{13}$ (c) $24C_{12}$ (d) $24C_{11}$

55) Sum of the binomial coefficients is
(a) 2n (b) n^2 (c) 2^n (d) n+17

56) The last term in the expansion of $(2 +\sqrt { 3 })^8$
(a) 81 (b) 27 (c) $\sqrt { 3 }$ (d) 3

57) The sum of the coefficients in the expansion of $(1 - x)^{10}$ is
(a) 0 (b) 1 (c) 10^2 (d) 1024

58) The value of $nC_0 - nC_1 + nC_2 - nC_3 ... + (-1)^n nC_n$ is
(a) 2^{n+1} (b) n (c) 2^n (d) 0

59) The value of n for which $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ is the arithmetic mean of a and b is
(a) 1 (b) 2 (c) 4 (d) 0

60) $\frac{1}{q+r},\frac{1}{r+p},\frac{1}{p+q}$ are in A.P., then
(a) p,q,r are inA.P (b) p^2,q^2,r^2 are inA.P (c) $\frac{1}{p},\frac{1}{q},\frac{1}{r}$ (d) p,q,r are in H.P.

61) If a,b, c are in A.P, as well as in G.P then
(a) $a = b \neq c$ (b) $a \neq b = c$ (c) $a \neq b \neq c$ (d) $a = b = c$

62) The sum of 40 terms of an A.P whose first term is 2 and common difference 4 will be
(a) 3200 (b) 1600 (c) 200 (d) 2800

63) $2^{1/4}\, 4^{1/8}\, 8^{1/16}\, 16^{1/32} \ldots =$

(a) 1 (b) 2 (c) $\frac{3}{2}$ (d) $\frac{5}{2}$

64) If x, 2x + 2, 3x + 3 . . . are in G.P, then the 4^{th} term is

(a) 27 (b) -27 (c) 13.5 (d) -13.5

65) If an A.P the sum of terms equidistant from the beginning and end is equal to

(a) first term (b) second term (c) sum of first and last term (d) last term

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65 x 1 = 65

1) (a) 2
2) (c) HP
3) (d) 4
4) (a) 0
5) (b) 1
6) (d) $\frac{{n}^{2}-n+2}{2}$
7) (d) $\frac{\sqrt{2n+1}-1}{2}$
8) (b) $1-2^{n}$
9) (c) $\frac{n(n+1)}{\sqrt{2}}$
10) (b) 7
11) (b) $\frac{2}{3}$
12) (c) $\frac{-4}{15}$
13) (c) $\frac{{(e-1)}^{2}}{2e}$
14) (b) $\frac{3}{2}\log\left(\frac{5}{3}\right)$
15) (a) 3
16) (b) -1365
17) (a) 2
18) (d) 7920
19) (b) 6
20) (c) $\frac{3ab}{2(b-a)}$
21) (b) $\frac{1}{11}$
22) (a) 1
23) (b) 3
24) (c) $\frac{n(n+1)}{4}$
25) (a) 2870
26) (c) $\frac{n(n+1)}{\sqrt{2}}$
27) (b) e^{4x}
28) (b) $2\left[x+\frac{{x}^{3}}{3}+\frac{{x}^{5}}{5}+...+\infty\right]$
29) (d) $\frac{-1}{2}$
30) (d) n(n + 1)
31) (d) $^{10}C_{6}2^{10}$
32) (d) $^{20}C_{8}\, 2^{8}\, 3^{12}$
33) (b) 21
34) (b) $a\ge g$
35) (b) 2
36) (a) 2^{n-1}
37) (b) 1080
38) (c) T_{12}
39) (d) AM≥GM≥HM

40) (a) 4

41) (b) $(1+x)^{-2}$

42) (c) $\frac{e-e^{-1}}{2}$

43) (d) $1-2x+x^2$

44) (a) $x+\frac{x^3}{3}+\frac{x^5}{5}+...$

45) (b) $\frac{4}{3}\log(\frac{7}{4})$

46) (b) 243

47) (a) $15C_4$

48) (b) $12C_6 2^6$

49) (d) $(-1)^{n/2} nC_{n/2}$

50) (c) 1:32

51) (b) log10

52) (a) 1

53) (a) e

54) (c) $24C_{12}$

55) (c) 2^n

56) (a) 81

57) (a) 0

58) (d) 0

59) (d) 0

60) (b) p^2, q^2, r^2 are inA.P

61) (d) a = b = c

62) (b) 1600

63) (b) 2

64) (a) 27

65) (c) sum of first and last term