

CLASS : XIth
DATE :

SUBJECT : MATHS
DPP NO. :2

Topic :-SEQUENCES AND SERIES

- The sum of $(x+2)^{n-1} + (x+2)^{n-2}(x+1) + (x+2)^{n-3}(x+1)^2 + \dots + (x+1)^{n-1}$ is equal to
 - $(x+2)^{n-2} - (x+1)^n$
 - $(x+2)^{n-1} - (x+1)^{n-1}$
 - $(x+2)^n - (x+1)^n$
 - None of these
- If a, b, c are in GP and x, y are arithmetic mean of a, b and b, c respectively, then $\frac{1}{x} + \frac{1}{y}$ is equal to
 - $\frac{2}{b}$
 - $\frac{3}{b}$
 - $\frac{b}{3}$
 - $\frac{b}{2}$
- The sum of 24 terms of the following series $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \dots$ is
 - 300
 - $200\sqrt{2}$
 - $300\sqrt{2}$
 - $250\sqrt{2}$
- The sum of the series $1^3 + 2^3 + 3^3 + \dots + 15^3$ is
 - 22000
 - 10000
 - 14400
 - 15000
- The value of $a^{\log_b x}$, where $a = 0.2$, $b = \sqrt{5}$, $x = \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots \infty$, is
 - 1
 - 2
 - 1/2
 - 4
- If the sum of first n natural numbers is $1/5$ times the sum of their squares, then the value of n is
 - 5
 - 6
 - 7
 - 8
- The sum of series $1 + \frac{1}{4.2!} + \frac{1}{16.4!} + \frac{1}{64.6!} + \dots \infty$ is
 - $\frac{e+1}{2\sqrt{e}}$
 - $\frac{e-1}{2\sqrt{e}}$
 - $\frac{e+1}{\sqrt{e}}$
 - $\frac{e-1}{\sqrt{e}}$
- The sum of the squares of three distinct real numbers which are in G.P. is S^2 . If their sum is αS , then
 - $1 < \alpha^2 < 3$
 - $\frac{1}{3} < \alpha^2 < 3$
 - $1 < \alpha < 3$
 - $\frac{1}{3} < \alpha < 1$

9. $1 + \frac{4}{5} + \frac{7}{5^2} + \frac{10}{5^3} + \dots$ to ∞ is
a) $\frac{16}{35}$ b) $\frac{11}{8}$ c) $\frac{35}{16}$ d) $\frac{7}{16}$
10. If a, b, c are in H.P., then the value of $\frac{b+a}{b-a} + \frac{b+c}{b-c}$ is
a) 1 b) 2 c) 3 d) None of these
11. The sum of the series $(1 + 2) + (1 + 2 + 2^2) + (1 + 2 + 2^2 + 2^3) + \dots$ upto n terms is
a) $2^{n+2} - n - 4$ b) $2(2^n - 1) - n$ c) $2^{n+1} - n$ d) $2^{n+1} - 1$
12. The sum of the series $\frac{3}{4.8} - \frac{3.5}{4.8.12} + \frac{3.5.7}{4.8.12.16} - \dots$
a) $\sqrt{\frac{3}{2}} - \frac{3}{4}$ b) $\sqrt{\frac{2}{3}} - \frac{3}{4}$ c) $\sqrt{\frac{3}{2}} - \frac{1}{4}$ d) $\sqrt{\frac{2}{3}} - \frac{1}{4}$
13. The value of $1 - \log 2 + \frac{(\log 2)^2}{2!} - \frac{(\log 2)^3}{3!} + \dots$ is
a) $\log 3$ b) $\log 2$ c) $\frac{1}{2}$ d) None of these
14. If the ratio of the sum of n term of two AP's be $(7n + 1) : (4n + 27)$, then the ratio of their 11th term will be
a) 2 : 3 b) 3 : 4 c) 4 : 3 d) 5 : 6
15. The value of $2.\overline{357}$ is
a) $\frac{2355}{999}$ b) $\frac{2355}{1000}$ c) $\frac{2355}{1111}$ d) None of these
16. The value of $1 + \frac{1+2}{2!} + \frac{1+2+3}{3!} + \frac{1+2+3+4}{4!} + \dots$ is
a) e b) $2e$ c) $\frac{3e}{2}$ d) $\frac{4e}{5}$
17. Sum of first n terms in the series $\cot^{-1} 3 + \cot^{-1} 7 + \cot^{-1} 13 + \cot^{-1} 21 + \dots$ is given by
a) $\tan^{-1} \left(\frac{n}{n+2} \right)$ b) $\cot^{-1} \left(\frac{n+2}{n} \right)$
c) $\tan^{-1}(n+1) - \tan^{-1} 1$ d) All of these
18. Maximum value of n for which $\sum_{-14}^n 1 > \sum_1^n \left(n + \frac{1}{2} \right)$ is
a) 4 b) 5 c) 6 d) 7
19. If $x^{18} = y^{21} = z^{28}$, then $3 \log_y x, 3 \log_z y, 7 \log_x z$ are in
a) A.P. b) G.P. c) H.P. d) None of these
20. If, for $0 < x < \pi/2$, $y = \exp[(\sin^2 x + \sin^4 x + \sin^6 x + \dots \infty) \log_e 2]$ is a zero of the quadratic equation $x^2 - 9x + 8 = 0$, then the value of $\frac{\sin x + \cos x}{\sin x - \cos x}$ is
a) 0 b) $2 + \sqrt{3}$ c) $2 - \sqrt{3}$ d) None of these