# DPP
DAILY PRACTICE PROBLEMS

**CLASS : XIth** **SUBJECT : MATHS**
**DATE :** **DPP NO. :2**

## Topic :-SEQUENCES AND SERIES

1. The sum of $(x+2)^{n-1}+(x+2)^{n-2}(x+1)+(x+2)^{n-3}(x+1)^2+\ldots+(x+1)^{n-1}$ is equal to
   a) $(x+2)^{n-2}-(x+1)^n$ b) $(x+2)^{n-1}-(x+1)^{n-1}$
   c) $(x+2)^n-(x+1)^n$ d) None of these

2. 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
   a) $\frac{2}{b}$ b) $\frac{3}{b}$ c) $\frac{b}{3}$ d) $\frac{b}{2}$

3. The sum of 24 terms of the following series $\sqrt{2}+\sqrt{8}+\sqrt{18}+\sqrt{32}+\ldots$ is
   a) 300 b) $200\sqrt{2}$ c) $300\sqrt{2}$ d) $250\sqrt{2}$

4. The sum of the series $1^3+2^3+3^3+\ldots+15^3$ is
   a) 22000 b) 10000 c) 14400 d) 15000

5. The value of $a^{\log_b x}$, where $a=0.2, b=\sqrt{5}$, $x=\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+\ldots\infty$, is
   a) 1 b) 2 c) 1/2 d) 4

6. If the sum of first $n$ natural numbers is 1/5 times the sum of their squares, then the value of $n$ is
   a) 5 b) 6 c) 7 d) 8

7. The sum of series $1+\frac{1}{4.2!}+\frac{1}{16.4!}+\frac{1}{64.6!}+\cdots\infty$ is
   a) $\frac{e+1}{2\sqrt{e}}$ b) $\frac{e-1}{2\sqrt{e}}$ c) $\frac{e+1}{\sqrt{e}}$ d) $\frac{e-1}{\sqrt{e}}$

8. The sum of the squares of three distinct real numbers which are in G.P. is $S^2$.If their sum is $\alpha$ $S$, then
   a) $1<\alpha^2<3$ b) $\frac{1}{3}<\alpha^2<3$ c) $1<\alpha<3$ d) $\frac{1}{3}<\alpha<1$

9. $1+\frac{4}{5}+\frac{7}{5^2}+\frac{10}{5^3}+\cdots$ to $\infty$ 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 $(1+2)+(1+2+2^2)+(1+2+2^2+2^3)+\ldots$ 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 $\frac{3}{4.8}-\frac{3.5}{4.8.12}+\frac{3.5.7}{4.8.12.16}-\ldots$
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 $1-\log 2+\frac{(\log 2)^2}{2!}-\frac{(\log 2)^3}{3!}+\cdots$ 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 $1+\frac{1+2}{2!}+\frac{1+2+3}{3!}+\frac{1+2+3+4}{4!}+\cdots$ is
a) $e$ b) $2e$ c) $\frac{3e}{2}$ d) $\frac{4e}{5}$

17. Sum of first $n$ terms in the series $\cot^{-1}3+\cot^{-1}7+\cot^{-1}13+\cot^{-1}21+\ldots$ 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 $3{,}3\log_y x, 3\log_z y, 7\log_x z$ are in
a) A.P. b) G.P. c) H.P. d) None of these

20. If, for $0<x<\pi/2, y=\exp[(\sin^2 x+\sin^4 x+\sin^6 x+\cdots\infty)\log_e 2]$ 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