DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :7**

Topic :-SEQUENCES AND SERIES

1. If a, b, c, d, e, f are in AP, then the value of $e - c$ will be
   a) $2(c - a)$ b) $2(f - d)$ c) $2(d - c)$ d) $d - c$

2. If the pth, $q$the and rth term of a GP and HP are a, b, c, then $a(b - c)$ $\log a + b(c - a)\log b + c(a - b)\log c$ is equal to
   a) -1 b) 0 c) 1 d) Does not exist

3. The sum of infinite terms of the series $\frac{1}{(1+a)(2+a)} + \frac{1}{(2+a)(3+a)} + \frac{1}{(3+a)(4+a)} + \ldots +$ to ∞, where a is a constant, is
   a) $\frac{1}{1+a}$ b) $\frac{2}{1+a}$ c) ∞ d) None of these

4. The number of real solutions of the equation $\log(-x) = 2\log(x+1)$, is
   a) 0 b) 1 c) 2 d) 4

5. The value of 0.423, is
   a) $\frac{419}{999}$ b) $\frac{419}{990}$ c) $\frac{423}{1000}$ d) None of these

6. The value of the sum $\sum_{r=1}^{n}\sum_{s=1}^{n} S_{rs}\, 2^r 3^s$, where $S_{rs} = 0$, if $r \neq s$ and $S_{rs} = 1$, if $r = s$, is
   a) $\frac{(5^n - 1)}{4}$ b) $\frac{6}{5}(6^n - 1)$ c) $\frac{5^n 6^n}{n+1}$ d) $\frac{5}{4}(5^n - 1)$

7. a,b,c,d,e are five numbers in which the first three are in A.P. and the last three are in H.P. If the three numbers in the middle are in G.P., then the numbers in the odd places are in
   a) A.P. b) G.P. c) H.P. d) None of these

8. The sum of the series $2[7^{-1} + 3^{-1}.7^{-3} + 5^{-1}.7^{-5} + \ldots]$ is
   a) $\log_e\left(\frac{4}{3}\right)$ b) $\log_e\left(\frac{3}{4}\right)$ c) $2\log_e\left(\frac{3}{4}\right)$ d) $2\log_e\left(\frac{4}{3}\right)$

9. An AP consists of 23 terms. If the sum of the three terms in the middle is 141 and the sum of the last three terms is 261, then the first term is
   a) 6 b) 5 c) 4 d) 3

10. If $2 \times 2^2 + 3 \times 2^3 + 4 \times 2^4 + \ldots + n \times 2^n = 2^{n+10}$, then $n =$
    a) 510 b) 512 c) 513 d) 508

11. An infinite GP has the first term $'x'$ and sum 5, then x belongs to

a) $x < -10$ b) $-10 < x < 0$ c) $0 < x < 10$ d) $x < 10$

12. If $x = -2$, then the value of $\log_4\left(\frac{x^2}{4}\right) - 2\log_4 4(x^4)$, is

a) 2 b) -4 c) -6 d) 0

13. If $\frac{\log 3}{x-y} = \frac{\log 5}{y-z} = \frac{\log 7}{z-x}$, then $3^{x+y}5^{y+z}7^{z+x} =$

a) 0 b) 2 c) 1 d) None of these

14. $\sum_{n=1}^{n}\sum_{i=1}^{i}\Sigma_{j=1}^{j}$ is equal to

a) $4\frac{n(n+1)(2n+1)}{6}$ b) $\left[\frac{n(n+1)}{2}\right]^2$ c) $\frac{n(n+1)}{2}$ d) $\frac{n(n+1)(n+2)}{6}$

15. $\frac{2}{3!} + \frac{4}{5!} + \frac{6}{7!} + \ldots$ is equal to

a) $e^{1/2}$ b) e^{-1} c) e d) $e^{-1/3}$

16. If $S_n = \frac{1}{6.11} + \frac{1}{11.16} + \frac{1}{16.21} + \ldots$to n terms, then $6S_n$ equals

a) $\frac{5n-4}{5n+6}$ b) $\frac{n}{(5n+6)}$ c) $\frac{2n-1}{5n+6}$ d) $\frac{1}{(5n+6)}$

17. If $\log(x-y) - \log 5 - \frac{1}{2}\log x - \frac{1}{2}\log y = 0$, then $\frac{x}{y} + \frac{y}{x} =$

a) 25 b) 26 c) 27 d) 28

18. If $\log_a x, \log_b x, \log_c x$ are in A.P., where $x \neq 1$, then $c^2 =$

a) $(ab)^{\log_a b}$ b) $(ac)^{\log_a b}$ c) $(ab)^{\log_b a}$ d) $(ac)^{\log_b a}$

19. If $a^{1/x} = b^{1/y} = c^{1/z}$ and a,b,c are in geometrical progression, then x,y,z are in

a) AP b) GP c) HP d) None of these

20. The coefficient of x^4 in the expansion of $\frac{1-2x-x^2}{e^{-x}}$ is

a) $\frac{1-k-k^2}{k!}$ b) $\frac{k^2+1}{k!}$ c) $\frac{1-k}{k!}$ d) $\frac{1}{k!}$