Model Question Paper 2

SEQUENCE AND SERIES 2

11th Standard

Maths

Reg.No. : | | | | | | |

Answer all the Questions

Time : 02:00:00 Hrs

Total Marks : 50

Part A

8 x 1 = 8

1) The A.M. between 2 numbers is 5 and the G.M. is 4. Then H.M. between them is .....

(a) $3\frac{1}{5}$ (b) 1 (c) 9 (d) $1\frac{1}{4}$

2) 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) $a = b = c$

3) The A.M, G.M. and H.M. between two positive numbers a anb b are equal, then .....

(a) a = b (b) ab = 1 (c) a > b (d) a < b

4) $e^{\log x}$ is equal to .....

(a) x (b) 1 (c) e (d) $\log_e x$

5) Is the sequence $a_n = n^2-1$, n$\in$N is a

(a) A.P (b) G.P (c) H.P (d) not an A.P

6) The 100th term in -1,-2,-3,-4.... is

(a) 100 (b) -100 (c) n (d) -n

7) If a,b,c are in A.P., then $\frac{1}{ab}, \frac{1}{ca}, \frac{1}{bc}$ are in

(a) A.P (b) G.P (c) H.P (d) None

8) The distance between the points (-1,-4) (3,5) is

(a) 97 (b) 81 (c) 13 (d) $\sqrt{97}$

Part B

9 x 2 = 18

9) Write the first five terms of the sequence given by

$a_1=a_2=2$, $a_n=a_{n-1}-1$, n>2

10) Write the first five terms of the sequence given by

$a_1=1$, $a_2=2$, $a_n=a_{n-1}+a_{n-2}$, n>2

11) Write the first five terms of the sequence given by

$a_n = 1, a_n = na_{n-1}, n \geq 2$

12) Write the first five terms of the sequence given by

$a_1=a_2=1$, $a_n=2a_{n-1}+3a_{n-2}$, n>2

13) Find the nth partial sum of series $\sum_{n=1}^{\infty} \frac{1}{3^n}$

14) Find the sum of first n terms of the series $\sum_{n=1}^{\infty} 5n$

15) Find the sum of 101th terms to 200 th term of the series $\sum_{n=1}^{\infty} \frac{1}{2_n}$

16) Find the first 5 terms of the sequence such that $t_1 = t_2 = 1, t_n = t_{n-1} + t_{n-2}; n \geq 3$

17) Insert 4 arithemetic means between 1 and 16.

Part C

3 x 3 = 9

18) If the pth and qth terms of a H,.P are q and p respectively, show that)(pq)th term is 1.

19) Three numbers form a H.P.The sum of the number is 11 and the sum of the reciprocals is one. Find the numbers.

20) Prove that

$\tan\left(\frac{\pi}{4} + \theta\right) tan\left(\frac{\pi}{4} - \theta\right) = 1$

Part D

3 x 5 = 15

21) Find the first 6 terms of the sequence whose general term is

$a_n = \begin{cases} n^2 - 1 & if \quad n \quad is \quad odd \\ \frac{n^2+1}{2} & if \quad n \quad is \quad even \end{cases}$

22) Find the nth partial sum of the series $\sum_{n=1}^{\infty} \frac{1}{3^n}$

23) Find the sum of 101th terms to 200th term of the series $\sum_{n=1}^{\infty} \frac{1}{2^n}$

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