**Model Question Paper**

Sequences and Series of real numbers - Part II

10th Standard

**Maths**

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

I.Answer all the questions.

II.Use Blue pen only.

Time : 01:15:00 Hrs

Total Marks : 50

## Section-A

4 x 1 = 4

1) If a, b, c are in A.P. then $\frac{a-b}{b-c}$ is equal to

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

2) If the $n^{th}$ term of a sequence is 100 n +10, then the sequence is

   (a) an A.P. (b) a G.P. (c) a constant sequence (d) neither A.P. nor G.P.

3) If $a_1, a_2, a_3, \cdots$ are in A.P. such that $\frac{a_4}{a_7} = \frac{3}{2}$, $13^{th}$ term of the A.P. is

   (a) $\frac{3}{2}$ (b) 0 (c) $12a_1$ (d) $14a_1$

4) If the sequence $a_1, a_2, a_3, \cdots$ is in A.P. , then the sequence $a_5, a_{10}, a_{15}, \cdots$ is

   (a) a G.P. (b) an A.P. (c) neither A.P nor G.P. (d) a constant sequence

## Section-B

6 x 2 = 12

5) In a flower garden, there are 23 rose plants in the first row, 21 in the second row, 19 in the third row and so on. There are 5 rose plants in the last row. How many rows are there in the flower garden?

6) If a person joins his work in 2010 with an annual salary of RS.30,000 and receives an annual increment of Rs.600 every year, in which year, will his annual salary be Rs.39,000?

7) Three numbers are in the ratio 2 : 5 : 7. If the first number, the resulting number on the substraction of 7 from the second number and the third number form an arithmetic sequence, then find the numbers.

8) Which of the following sequences are geometric sequences $5, 10, 15, 20, \cdots$.

9) Find the common ratio and the general term of the following geometric sequences. $\frac{2}{5}, \frac{6}{25}, \frac{18}{125}, \cdots$.

10) Find the sum of the arithmetic series 5 + 11 + 17 +· · ·+ 95.

## Section-C

6 x 5 = 30

11) Find the sum of the first 2n terms of the following series. $1^2 - 2^2 + 3^2 - 4^2 \cdots$.

12) In an arithmetic series, the sum of first 14 terms is -203 and the sum of the next 11 terms is –572. Find the arithmetic series.

13) How many terms of the arithmetic series 24 + 21 + 18 + 15 +· · ·, be taken continuously so that their sum is – 351.

14) Find the sum of all 3 digit natural numbers, which are divisible by 8.

15) The measures of the interior angles taken in order of a polygon form an arithmetic sequence. The least measurement in the sequence is $85^\circ$. The greatest measurement is $215^\circ$. Find the number of sides in the given polygon.

16) a) Find the sum of the first 25th terms of the geometric series $16 - 48 + 144 - 432 + \cdots$.

    b) Find $S_n$ for each of the geometric series described below: $a = 2, \quad t_6 = 486, \quad n = 6$

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