**Model Question Paper**

Sequences and Series of real numbers - Part III

10th Standard

**Maths**

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

I.Answer all the questions.

II.Use Blue pen only.

Time : 01:30:00 Hrs

Total Marks : 60

## Section-A

4 x 1 = 4

1) If k+2, 4k–6, 3k–2 are the three consecutive terms of an A.P, then the value of k is

   (a) 2 (b) 3 (c) 4 (d) 5

2) If a, b, c, l, m. n are in A.P., then 3a+7, 3b+7, 3c+7, 3l+7, 3m+7, 3n+7 form

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

3) If the third term of a G.P is 2, then the product of first 5 terms is

   (a) $5^2$ (b) $2^5$ (c) 10 (d) 15

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

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

## Section-B

6 x 2 = 12

5) An organisation plans to plant saplings in 25 streets in a town in such a way that one sapling for the first street, two for the second, four for the third, eight for the fourth street and so on. How many saplings are needed to complete the work?

6) Find the sum of the following series

   $26 + 27 + 28 + \cdots + 60$

7) Find the sum of the following series (i) $1^2 + 2^2 + 3^2 + \cdots + 25^2$

8) Find the sum of the series. $1^3 + 2^3 + 3^3 + \cdots + 20^3$

9) If $1^3 + 2^3 + 3^3 + \cdots + n^3 = 36100$, then find $1 + 2 + 3 + \cdots + n$.

10) Write the first three terms of the following sequences whose $n^{th}$ terms are given by $a_n = \frac{n(n-2)}{3}$

## Section-C

7 x 5 = 35

11) A geometric series consists of four terms and has a positive common ratio. The sum of the first two terms is 8 and the sum of the last two terms is 72. Find the series.

12) Find the sum to n terms of the series $6 + 66 + 666 + \cdots$

13) Find the value of k, if $1^3 + 2^3 + 3^3 + \cdots + k^3 = 4356$

14) Find the total area of 14 squares whose sides are $11cm, 12cm, \cdots, 24cm$, respectively.

15) If $9^{th}$ term of an A.P. is zero, prove that its $29^{th}$ term is double (twice) the $19^{th}$ term.

16) The $10^{th}$ and $18^{th}$ terms of an A.P. are 41 and 73 respectively. Find the $27^{th}$ term.

17) Find n so that the $n^{th}$ terms of the following two A.P.'s are the same. $1, 7, 13, 19, \cdots \quad and \quad 100, 95, 90, \cdots$.

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