Quality Checkers Only way to fulfill your dreams	XI-SCI : Maths Sequences and Series,	**DATE:** **TIME: 1 Hours 30 Minutes** **MARKS: 25** SEAT NO:

Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1. Select and write the correct answer. **(4)**

1. Find t_n for the following AP 4, 9, 14, 19,...

   A) 4n - 3 B) 5n - 1
   C) 6n - 2 D) 3n - 1

2. For the following GP find t_n.
   3, 15, 75, 375,....

   A) $3(5)^{n-1}$ B) $5(3)^{n-1}$
   C) $8(2)^{n-1}$ D) $2(5)^{n-2}$

Q.2. Answer the following. **(3)**

1. For the GP If $a = \frac{7}{243}$, r = 3 find t_6.
2. Which term of the GP 5, 25, 125, 625, ... is 5^{10}?
3. Find the coefficient x^6 in the expansion of e^{2x} using series expansion

Section B
Attempt any Four

Q.3 Check whether the following sequences are GP If so, write t_n **(2)**
2, 6, 18, 54, ...

Q.4 Find the n^{th} term and hence find the 8^{th} term of the $\frac{1}{5}, \frac{1}{10}, \frac{1}{15}, \frac{1}{20}, \ldots \text{HP}$ **(2)**

Q.5 $\text{Find } \sum_{r=1}^{\infty} \left[-\frac{1}{3}\right]^r$ **(2)**

Q.6 Determine whether the sum to infinity of the following GP exist, if exists find them. **(2)**
9, 8.1, 7.29, ...

Q.7 For the GP If $a = \frac{2}{3}$ t_6 = 162, find r. **(2)**

Q.8 $\text{Find } \sum_{r=0}^{\infty} (8)\left[-\frac{1}{3}\right]^r$ **(2)**

Section C
Attempt any Two

Q.9 $\text{Find} \sum_{r=1}^{n} (3r^2 - 2r + 1)$ **(3)**

Q.10 Find the sum to n terms of 0.4 + 0.44 + 0.444 + ... **(3)**

Q.11 The value of a house appreciates 5% per year. How much is the house worth after 6 years if its current worth is R. 15 Lac? [Given : (1.05)5 = 1.28, (1.05)6 = 1.34] **(3)**

Section D

Attempt any One

Q.12 $\text{Find } \frac{1^2}{1} + \frac{1^2 + 2^2}{2} + \frac{1^2 + 2^2 + 3^2}{3} + \text{... upon n terms}$ **(4)**

Q.13 $\frac{1 \times 3 + 2 \times 5 + 3 \times 7 + \text{.... upto n terms}}{1^3 + 2^3 + 3^3 + \text{... upto n terms}} = \frac{5}{9} \text{find the valve of n}$ **(4)**