CLASS TEST-2

CHAPTER-SEQUENCE AND SERIES (CLASS XI)

MM:15 **TIME-30 MIN**

(1) Let x be the A.M. and y, z be two G.M.′ s between any two positive numbers. Then , prove that

$$\frac{y^3+z^3}{xyz}=2.$$

(2)The sum of an infinite geometric series is 15 and the sum of the squares of these terms is 45.

Find the series.

(3) Prove that the sum to n terms of the series $11+103+1005+\cdots..$ is $\frac{10}{9}(10^n-1)+n^2$

(4) If $S_1, S_2, S_3, \ldots., S_m$ are the sums of n terms of m A.P.′ s whose first terms are $1, 2, 3, \ldots, m$ and common differences are $1, 3, 5, \ldots., (2m-1)$ respectively. Show that $S_1+S_2+S_3+\cdots+S_m=\frac{mn}{2}(mn+1)$

(5) Between 1 and 31 are inserted m A.M.′ s so that the ratio of the 7th and $(m-1)$th means is 5:9.

Find the value of m.