INDIAN SCHOOL MUSCAT

CLASS-11 **DEPARTMENT OF MATHEMATICS** **W. S (1)**

SEQUENCES AND SERIES

1. If the sum of a certain number of terms, starting from first, of an A.P 25, 22, 19, … is116,find the last term taken in the sum.

2. The sum of first three terms of a G.P is $\frac{39}{10}$ and their product is1.Find the first term, the common ratio and the terms of this G.P.

3. If a, b, c are in G.P, prove that $a^2+b^2, ab+bc, b^2+c^2$ are also in G.P.

4.If a^2, b^2, c^2 are in A.P, then show that $\frac{1}{b+c}, \frac{1}{c+a}, \frac{1}{a+b}$ are also in A.P.

5. In a sequence the first number is $\frac{1}{3}$.The (n+1)th number is nth number divided by one more than the nth number. what is the 50th number.

6.Which term of an A.P, 7 - 4i, 6 – 2i, 5 – 0i, 4 + 2i, …. is (i) purely real (ii) purely imaginary?

7. If mth term of an A.P, is $\frac{1}{n}$ and the nth term is $\frac{1}{m}$, show that the sum of first mn terms is

$\frac{1}{2}(mn+1)$.

8.Mona buys a car for Rs.22000.She pays Rs.6000 cash and agrees to pay the balance in annual installments of Rs.1000 plus 10% interest on the unpaid amount. Find the total cost of the car.

9.The ratio of the sums of m and n terms of an A.P, is $m^2 : n^2$, show that the ratio of mth and nth terms is (2m - 1) : (2n - 1).

10.Find four numbers in A.P, whose sum is 10 and the sum of whose squares is 30.

11.Insert 3 arithmetic means between 2 and 10.

12.If a, b, c are in A.P, prove that $(b+c)^2 - a^2, (c+a)^2 - b^2, (a+b)^2 - c^2$ are also in A.P

13.Insert 4 geometric means between 1 and 243.

14.If the A.M and G.M between two numbers a and b are in the ratio m : n, then prove that the numbers are in the ratio $m+\sqrt{m^2-n^2} : m-\sqrt{m^2-n^2}$.

15.The sum of three numbers in G.P is 56. If 1, 7, 21 are subtracted from the numbers respectively, the resulting numbers form an A.P.Find the numbers.