Sequence, Series and Progression Practice

20 Minutes – (Don't skip any questions)

1) If the ratio of the sum of the first 6 terms of a G.P. to the sum of the first 3 terms of the G.P. is 9, what is the common ratio of the G.P?
   A. $1/9$ B. $1/3$ C. 2 D. 3 E. 9

2) The sum of the *fourth* and *twelfth* term of an arithmetic progression is 20. What is the sum of the first 15 terms of the arithmetic progression?
   A. 120 B. 150 C. 170 D. 200 E. 270

3) The sum of 3rd and 15th elements of an A.P. is equal to the sum of the 6th, 11th and 13th elements of the same progression. Which of these terms must be zero?
   A. 1^{st} B. 10^{th} C. 12^{th} D. 5^{th} E. $None$

4) Find the 10th term if $t_1 = 2.1$ and $t_4 = 1.83$
   A. 0.27 B. 0.81 C. 1.17 D. 1.29 E. $None$

5) Find the 5th term if $t_2 = -5$ and $t_6 = 7$
   A. 2 B. 3 C. 4 D. 5 E. 6

6) Find the sum of multiples of 3 from 3 to 99 inclusive.
   A. 1743 B. 1713 C. 1683 D. 1653 E. 1623

7) Find the sum of all even numbers from 2 to 200 inclusive.
   A. 10000 B. 10100 C. 11010 D. 11100 E. 11110

8) What is the sum of all two digit numbers that give a remainder of 3 when are divided by 7?
   A. 666 B. 676 C. 683 D. 777 E. 784

9) The sum of n terms of the series: $1^2 - 2^2 + 3^2 - 4^2 + 5^2 - 6^2 + \cdots$ is given by the formula: (n is even)

A. $-\frac{n(n+1)}{2}$ B. $\frac{n(n+1)}{2}$ C. $-n(n+1)$ D. $-n+1$ E. $None$

10) If the middle term, of an increasing GP having three terms, is doubled and the new numbers are in AP, then the common ratio of the GP is:

A. $-2+\sqrt{3}$ B. $2-\sqrt{3}$ C. $2+\sqrt{3}$ D. $-2-\sqrt{3}$ E. $None$

11) The sum of n terms of the series: $\frac{3}{1^2} + \frac{5}{1^2+2^2} + \frac{7}{1^2+2^2+3^2} + \cdots$ is

A. $\frac{6n}{n+1}$ B. $\frac{9n}{n+1}$ C. $\frac{12n}{n+1}$ D. $\frac{3n}{n+1}$ E. $None$