Time: 45 Minutes Maximum Marks: 20M

Mathematics – Class Xth

Arithmetic Progression

Q1- For what value of p are 2p + 1, 13, 5p – 3 are three consecutive terms of an AP? (1M)

Q2- Check whether the following is an AP or not? If yes, find the common difference:

$\sqrt{3}, \sqrt{12}, \sqrt{27}, \sqrt{48}$ (1M)

Q3- (1M)

The n^{th} term of the A.P. $\frac{1}{m}, \frac{1+m}{m}, \frac{1+2m}{m}, \ldots$ is ..... .

Q4- (1M)

The common difference of Arithmetic Progression (A.P.) $\frac{1}{a}, \frac{3-a}{3a}, \frac{3-2a}{3a} \ldots (a \neq 0)$ equals to ..... .

Q5- (1M)

The 21st term of the A.P. $-4\frac{1}{2}, -3, -1\frac{1}{2}, \ldots$ is ..... .

Q6- (1M)

Which term of the progression 20, $19\frac{1}{4}, 18\frac{1}{2}, 17\frac{3}{4}$ is the first negative term :

(a) 27^{th} term **(b)** 28^{th} term **(c)** 26^{th} term **(d)** 25^{th} term

Q7- In an AP, if a = 1, a_n = 20 and S_n = 399 then find the value of n. (2M)

Q8- In an AP, sum of first n terms is $\frac{3n^2}{2} + \frac{13n}{2}$. Find its 25^{th} term. (2M)

Q9- The sum of first six terms of an AP is 42. The ratio of its 10^{th} term to its 30^{th} term is 1 : 3. Calculate the first term and sum of first 13 terms. (3M)

Q10- Find the sum of all three digit natural numbers, which are divisible by 7. (3M)

Q11-

1. If S_n denotes the sum of first n terms of an AP, prove that $S_{12} = 3(S_8 - S_4)$
2. Find the value of x

   1 + 4 + 7 + 10 +...+ x =287 (2 + 2 = 4M)