TEST PAPER: MATHEMATICS

Time: 50 Minutes **Class: 10th C.B.S.E.**

Max. Marks: 30 Marks **Date: 11th July, 2018**

Marking Scheme: *Four questions carry 10 marks each. Questions have 3 subparts each. Subparts (a) and (b) carry 3 marks each and subpart (c) carries 4 marks.*

Question 1:

a. Five times of a positive integer is less than twice its square by 3. Find the integer.

b. i. Find the remainder when $x^{51} + 51$ is divided by $(x+1)$.

ii. Find remainder when $x^3 - ax^2 + 6 - a$ is divided by $(x - a)$.

c. i. LCM of two numbers is 2295 and HCF is 9. If one of the numbers is 153, find the other number.

ii. Check whether the decimal expansion of $\frac{63}{1260}$ is recurring or non-recurring.

Question 2:

a. i. Find the value of k if the remainder is -3 when $kx^3 + 8x^2 - 4x + 10$ is divided by $x + 1$.

ii. Prove that $x + 5$ is a factor of $2x^2 + 7x - 15$.

b. Show that any positive odd integer is of the form $4q + 1$ or $4q + 3$, where q is some integer.

c. i. Solve the quadratic equation by Quadratic method $x^2 - 3x - 18 = 0$

ii. Find k for which the equation $4x^2 + kx + 9 = 0$ has only one real and equal root.

Question 3:

a. Check whether polynomial $x - 3$ is a factor of the polynomial $x^3 - 3x^2 - x + 3$ by division algorithm.

b. The length of a rectangle is greater than its breadth by 3m. If its area be 10 sq. m, find the perimeter.

c. Find the zeroes of $2x^3 - 11x^2 + 17x - 6$.