TEST PAPER: MATHEMATICS

Time: 50 Minutes   **Class:** 9th I.C.S.E.

Max. Marks: 30 Marks   **Date:** 6th June, 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.* **Attempt any 3 questions.**

Hint: Careful! There are two values (±) for square root of a number!

Question 1:

a. Find the value of $125x^3 + 27y^3$, if $5x + 3y = 8$ and $xy = 2$.

b. If $a + b + c = 10$ and $ab + bc + ca = 24$, find the value of $a^2 + b^2 + c^2$.

c. i. If $x + \frac{1}{x} = 7$, find the value of $x^3 + \frac{1}{x^3}$

     ii. Evaluate by using suitable identity: $(10.1)^3$

Question 2:

a. Find: $(2 - 3x)^3 - (5 + 3x)^3$

b. If $x^2 + \frac{1}{x^2} = 11$, find:

     i. $x - \frac{1}{x}$

     ii. $x + \frac{1}{x}$

c. i. If $x + \frac{1}{x} = 3$, find the value of $x^4 + \frac{1}{x^4}$

     ii. The sum of two numbers is 50 and their difference is 22. Find the numbers.

Question 3:

a. Find the value of $x^3 + 27y^3$, if $x + 3y = 5$ and $xy = 2$.

b. If $x^2 + y^2 = 101$ and $xy = 10$, find the value of:

     i. $x - y$

     ii. $x + y$

c. i. If $x + y = 10$ and $xy = 15$, find the value of $x^2 + y^2$

     ii. If $x^2 + y^2 = 29$ and $xy = 10$, find the value of $x + y$

Question 4:

a. If $x^2 + \frac{1}{x^2} = 14$, find $x + \frac{1}{x}$

b. i. Solve by elimination method: $2x - 3y = 2$ and $x + 2y = 8$

    ii. Solve by substitution method: $x + y = 15$ and $x - y = 3$

c. If $x - \frac{1}{x} = 5$, find the value of:

     i. $x^2 + \frac{1}{x^2}$

     ii. $x^3 - \frac{1}{x^3}$