**Class : XI, Subject : Mathematics**

**SECTION – A**

Q.1 Let R = {(x, y) : x and y are integers and $x^2+y^2 = 64$}. Write R in roaster form. 1

Q.2 If A = {2, 4, 6, 9} and B = {4, 6, 18, 27, 54} $a \in A$, $b \in B$, Find the set of ordered pairs such that a is a factor of b and a < b. 1

Q.3 Find the value of cosec $\left(\frac{-19\pi}{3}\right)$ 1

Q.4 Let f = {(1, 1), (2, 3), (0, -1), (-1, -3)}be a function from Z to Z defined by f(x) =ax+b for some integers a and b. Find f (x) 1

Q.5 Find the domain of the function f (x) = $\frac{x^2+2x+1}{x^2-8x+12}$ 1

**SECTION – B**

Q.6 Find the range of f(x)= $\sqrt{25-x^2}$ 2

Q.7 Express (-4 radian) into degree. 2

Q.8 For set A = { 1, 2, 3, 4, 5} B = {1, 3, 5, 8} and C = {2, 5, 7}

Verify : A – (B $\cup$ C) = (A – B) $\cap$ (A – C) 2

**SECTION - C**

Q.9 If tan x = ¾, and x lies in the third quadrant, find the value of sin x/2, cos x/2, tan x/2. 3

Q.10 Find the domain and range of the function f(x) = $\frac{1}{\sqrt{x^2-1}}$ 3

Q.11 In a class, 18 students took physics, 23 students took chemistry and 24 students took mathematics. Of these 12 took both physics and chemistry, 13 took both chemistry and mathematics and 11 took both physics and mathematics. If 6 students offered all the three subjects, find 3

(1) Total number of students in the class

(2) How many took mathematics but not chemistry

(3) How many took exactly one of the 3 subjects.