ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

SOLUTION OF WORKSHEET-5

SUBJECT – MATHEMATICS

Term : 1st

Topic – Mappimg or function   **Class: XII**

Full Marks: 15   **Date:16.05.2020**

Select the correct alternative of the following questions.

Q1.   Let R be the set of real numbers and the mapping $R \to R$ be dined as
       $f(x) - 2x^{2,}$ then $f^{-1}(32) =$

   a. **{4, -4}**   b. {1, -1}   c.{2, -2}   d. none of these

Q2.   The mapping $f: A \to B$ invertible if f is

   a. Injective   b. surjective   **c. bijective**   d. none of these

Q3.   Let A = {a, b, c, d} and $f: A \to A$ be defined as f(a) = d, f(b)= a, f(c) = b and f(d)=c. State which of
       the following is equal to f^{-1}(b).

   a. {a}   b. {b}   **c. {c}**   d. none of these

Q4.   Let Z be the set of integers and the mapping $f: Z \to Z$ be defined by, $f(x) = x^2$. State which of
       the following is equal to f^{-1}(-4) ?

   a. {2}   b. {-2}   c.{2, -2}   **d. none of these**

Q5.   Let the function $f: A \to B$ have an inverse function $f^{-1}: B \to A$, then the nature pf function is

   a. **One to one &onto** b. One to one &into   c. Many to one &onto   d. none of these

Q6.   Let A= { -2, -1, 0, 1, 2 } and $f: A \to A$ be dined by f(-2)=1, f(-1) =-2, f(0) =1, f(2) = 1. Find $f^{-1}(-1)$

   a. **Φ**   b. {1}   c. {-1}   d. none of these

Q7.   The function $f: R \to R$ be defined as $f(x) = x^2$, then $f^{-1}(25)$ is

   a. **{-5, 5}**   b.{-3, 3}   c. [-2, 2}   d. none of these

Q8.   Let A={a, b, c} and B = {p, q, r}, then one of their inverse mapping is

   a. **{(q,a),(p, b), (r, c)}**   b. {(a,p),(b,q), (c,r)}   c. {a, p, c}   d. none of these

Q9.   Let C be the set of all complex numbers and $f: A \to A$ be given by $f(x) = 3x^2 + 16$. Then

   $f^{-1}(-1)$ is

   a. $(\sqrt{5}, -\sqrt{5})$ b. $\{\sqrt{5}i, -\sqrt{5}i\}$ **c.** $(\sqrt{3}, -\sqrt{3})$ d. none of these

Q10.   Let the function $f: R \to R$, be given by $(x) = 3x^2 - 14x + 10$, then $f^{-1}(2)$ is

   a. {3, 4}   **b.** $\{\frac{2}{3}, 4\}$ c. {4, -3}   d. none **of** these

Q11.   Let fx) = 2x – sin x and g(x)= $x^{\frac{1}{3}}$, then

   a. **g o f is R**   b. g o f is many to one   c. g o f is one to many   d. none of these

Q13.   If $e^{f(x)} + e^x = e$, then for f(x) domain is

   a. $(-\infty, \infty)$ b. $(-\infty, 0)$ **c. $(-\infty, 1)$**   d. none of these

Q14.   If the function f satisfies the relation f(x+y) + f(x-y) =2f(x)f(y), $\forall\, x, y \in R\; and\; f(0) \neq 0$ then f(x)

   a. **Even function**   b. odd function   c. constant   d. none of these

Q15.   If $R^+ \to R^+$ is a polynomial function satisfying the functional equation f{f(x)}= 6x – f(x), then
        f(17) is equal to

   a.   17   **b. -51**   c. +347   d. none of these