**Diploma Assignment 2019-20**

**Attempt any 10 Questions**

**Q1**. If, then prove that.

**Q2**. (a) If, then prove that

 (b) If, then prove that

**Q3**. If y = , then prove that x = y(1-y).

**Q4**. Differentiate logsinx with respect to cosx.

**Q5**. Find the value of dx.

**Q6.** Find the value of dx.

**Q7**. f(x) = sin x and g(x) = cos x, then prove that ,

**Q8**. Prove that the function continuous at

**Q9.** Find the cosine angle between vector 4i + 3j + k and 2i- j+2k.

**Q10.** If a = 3i - j - 2k and b = 2i + 3j + k, then prove that (a+2b) X (2a- b).

**Q11.** Find the sine angle between vector i + 2j + 3k and 3i+ 2j+k .

**Q12.** If vector 2i + j+k and 4i - 2j- 2k are perpendicular then

 the value of = ? .

**Q13.** Prove that the following function f continuous at,

**Q14.** Find the value of K so that the function

 is continuous at the point x = 5.

**Q15.** If then prove that