***INTRODUCTION:***

***Use of derivative is very essential for scientific development and modern technology. It is wide use in physics science, engineering, commerce,economics, industry etc. For example, in physics derivative is used to find the effective voltage and current in an electric circuit. In an industry, it is used to find the rate of change of total cost with respect to the level of production. In economics, it is used to determining the***

***Level of production maximize or minimize profit etc.***

***So, actually we are interested how one variable changes with respect to other. It is the derivative that provides the motion of the rate of change of one variable with respect to other. It is therefore an indispensable tool in the marginal analysis.***

***Geometrical and Physical meaning of Derivatives:***

***It has been already discussed that the derivative of a function has two intrepetation. One is geometrical and the other is physical intrepetation.***

***Geometrical meaning: if y = f(x). be the given function having the continuous curve, then the derivative of F(x)***

***With respect to x i.e dy/dx. Represents the slope of a tangent at any point of the curve represented by the function y = f(x).***

***Physical meaning of derivative : The instantaneous velocity of a particle describing a path given by s +F(t) in time t is equal to the derivative of th function.***

***Increasing and decresing Function:***

***We all are familiar with the team increasing and decreasing. If your employer informs you that your salary will be increasing steadily over the term your employment, you have in mind that as the time, the graph might look something like if you take out a loan to purchase a car or a home or to pay for your college***

***Education, once you start paying back the loan, your***

***Indebtedness will decrease over time . If you plotted your debt against time, the graph might look something like fig***

***Introduction :***

***Calculus is the mathmetics of motion and change. Where there is motion or growth, where variable forces are at force producing acceleration, calculus is the right mathmetics to apply. It deals principally with two geometric problems: finding the tangent line to a curve, which is studied bu a limit process known as differentiation and finding the area of a region under a cureve, which is studied by another limit process Integration to which we turn now. The Websters dictionary says that to integrate means the deeper and more fundamental meaning is nearly the same definition as the non technical definition to indicate the whole of to sum or total of”***

***Integral calculus deals with the problems of determining a function from information about its rate of change or from its derivatives it enables people to find areas of irregular region. In the plane, to measure the lengths of curves, to find the volume and masses of***

***Arbitrary solids to find the centers of gravity and other applications, in the fields of physics, astronomy, engineering, economics. etc.***

***In the early days, the calculations of the area under the curve of a function was a challenge for mathmetician. The great Greek mathmetician archimides solved this problems by using some special methods. Before Leibnitz and newtons areas under the graphs of some simple algebraic functions were only known. Leibnitz and some other mathmeticians found the area under the curve as an infinite sum of infinitely thin rectangles leibtitz also introduced an infinite sum of infinity thin rectangles Leibnitz also introduced integral sign in 1676 by elongated s which stands for “Sum”.The subject concerning these theory was decided by the agreement between james Bernoulli and Leibnitz to be called Integrals Calculus in 1690.***

***In this chapter, we find integrals of various types of functions by different methods, the areas under the plane curevs by using definite integrals.***