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**ZU/WI/7/EXM/6**

**ZETECH UNIVERSITY**

**ACADEMIC YEAR 2016/2017**

**ORDINARY EXAMINATION FOR DIPLOMA COMPUTER SCIENCE**

**DCS 0303: CALCULUS**

**Date August 2017 TIME: 1 Hr 30 Mins**

**INSTRUCTIONS:**

1. Answer **QUESTION ONE** and **any other two** questions.

2. Question ONE carries 30 marks while the others carry 15 marks each.

3. Do not put any mark on the question paper

**QUESTION ONE**

1. Factorize x4-25[4mks]
2. Reduce the following expressions to lowest terms
3. 53x=57x-2 [3mks]
4. Log x+ log(x-1)=log(3x+12) [5mks]
5. Find the derivative of ***f(x) = 2x+3*** from the first principles [5mks]
6. Determine [5mks]

 **∫**$(4+\frac{3x}{7}+6x2$) dx

1. Given that $f\left(x\right)= 2x5-4x3-5$ find $f^{'}(x)$ [4mks]
2. Find the equation of the tangent to the curve $y=x2-x-2$ at the point (1,2) [5mks]

**QUESTION TWO**

1. Find the derivatives of $f\left(x\right)=2x3 $ [6mks]
2. Determines the inverse of $f\left(x\right)= x-1$ function [4mks]
3. Differentiate $y=3cos⁡(5x2+2$ [5mks]

**QUESTION THREE**

1. Differentiate $y=5/\sqrt[3]{x4}$[4mks]
2. The distance x metres moved by a car in a time t seconds is given by;

 $x=3t2-2 t2+4t-1 m$. Determine the velocity and acceleration when t=0. [5mks]

1. Evaluate [6mks]
2. Log4 16
3. Log6216

**QUESTION FOUR**

1. Determine **∫**$\left(3x+2x2-5\right)dx$[3mks]
2. Using quotient rule determine $\frac{dy}{dx} $ if $y = √x$ [4mks]

 $x2+1$