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RD# 7925

Section "A"

Assignment # "3"

(Differential Equation)

Semester : 4th

Topic:

Application of partial Differential Equation:

(PDE) has many application in many fields. The equation involving partial derivatives are known as partial differential Equation. (PDE)

\* Daily life

Partial differential derivatives are used in basic law of physics for examples Newton law of linear motion.

Maxwell is equation of Electromagnetism and Einstein's Equation in General Relativity.

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In the field of Civil Engineering

=> Differential equation are the true essence of the physical world. They are used to describe the physical phenomenon which is encountered at microscopic as well as macroscopic level.

=> Differential Equation are extensively involved in Civil Engineering

-> As Civil Engineering mostly concerned with building structure and Geometrical shapes. So any work revolved around modeling

modeling structure fields. And more can be modeled using differential Equation.

If you have any complicated Geometry, which most realistic problems, have you shall likely to use the said partial Differential Equation is an approximate

framework like that of finite (Differential, volume, Element) to approximately figure out a solution to a problem you case about.

In Economic field:

In the field of Economics we use partial Differential Equation (PDE) (derivative) to check.

What happened to other variable while keeping one variable constant.

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In the field of Mechanical Engineering  
⇒ these ~~order~~<sup>are</sup> different order of  
partial derivative describe  
the rate of change of  
function. respectively representing  
real physical quantities

→ The use of the separation  
of variables technique to solve  
partial Differential Equations (PDE's)  
relating to heat condition in  
solids and vibration of solids  
in multidimensional system.

⇒ partial differential equation are used  
to mathematically formulate and  
thus aid the solution of physical  
and other problems involving  
function of several variable,  
such as propagation of heat or sound  
fluid flow, Elasticity, electrostatic  
Electrodynamics etc.