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Section "A"

Subject: Calculus

Summer exam. Assignment.

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① Application of Derivative and Integration in engineering?

Ans  $\Rightarrow$  Derivative: The derivative is defined as something which is based on some other things. In Mathematics, Derivative is an expression that gives the rate of change of a function with respect to an independent variable.

$\Rightarrow$  Derivative has various applications in Engineering.

$\Rightarrow$  We use the Derivative to determine the maximum and minimum value of a particular function.

$\Rightarrow$  ~~eg.~~ eg. (Cost, strength, amount of material use in building, profit, losses, etc.)

$\Rightarrow$  especially when modeling the behaviour of moving objects.

## Application of Derivative in Real life.

⇒ To calculate the Profit and loss in business using Graph. to check the temperature variation.

⇒ To determine the speed or Distance covered such as mile per hour, kilometer per hour etc.

⇒ **Integration:** In integration assigns numbers to function in a way that can describe displacement, area, volume and other concept that arise by combining infinitesimal data.

## Application of integration.

- ⇒ Area between curve.
- ⇒ Distance Velocity Acceleration.
- ⇒ Centre of Mass
- ⇒ Probability
- ⇒ Surface Area etc.
- ⇒ integration in civil engineering the design and maintenance of Public works such as roads, bridges, water, energy-system, ports, railways and

Air Potts.

Application in engineering:

⇒ In architecture engineering uses integration in determining the amount of necessary material to construct curved shape construction.

⇒ In electrical engineering integration is used for to measure exact length of power cable to connect two substation.

⇒ Space flight engineering frequently use calculus when planning for long mission to launch an exploratory probe.

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THANK

YOU