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Assignment Applied Calculus

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Assignment 1 :-

* Application of Derivatives
in Engineering :-

Ans Derivatives are almost used
in every field of engineering.

* We use derivatives to
determine the maximum
and minimum values of
particular function. e.g.

● Profit :- We can find profit
of the work.

● Loss :- Through derivatives
we can calculate the
loss of our work.

(2)

- **Material:-** We can also calculate or find that how much amount of material will required for building work or other construction work.
 - **Strength:-** We can calculate strength of column and beams that much load will it carry.
 - **Designing:-** It also helps in the design and maintenance of work such as roads, bridges, railways etc.
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(3)

Q: Application of Integration in engineering:-

Ans:-

- Integration is used in engineering to determine the amount of the necessary material to construct curved shape material. e.g (dome over a sport arena)
- It is also used to measure the weight of the structure.
- Centroid of an Area:-
In tilt-slab construction, we have a concrete wall (with doors & windows cut out) which we need to raise into position we don't want the wall to crack as we raise it so we ~~know~~ need to know the centre of mass at the wall we can find the centroid of

an area with straight sides, then we will extend the concept to area with curved sides where we will use integration.

- It is used to determine shear force and bending moment.
 - Used to determine length of curve.
 - In electrical engineering, used to determine the exact length of power cable needed to connect two substations, which are miles away from each other.
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