Assignment (Group 7)
Calculus and Analytical Geometry
Energy and Environment - Batch 15

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1. What is difference between implicit and explicit functions? Find $\frac{dy}{dx}$ for the given implicit function

$$e^{2x+3y} = x^2 - ln(xy^3).$$

2. Explain derivative as rate of change. Derivative of constant function is always zero. What do you conclude from this?

3. What is difference between *definite* and *indefinite* integration? What are applications of integration?

4. Define limits of functions. Give an example of functions whose limit at certain point is not equal to the value of function at same point.

5. Find the critical points (extereme points) of the function

$$f(x) = \sin(\frac{x}{3}) + \frac{2x}{9}$$

6. Evalute following integrals:

$$\int 7x^3 \cos(2 + x^4) - 8x^3 e^{2+x^3} dx$$

$$\int 4\sqrt{(}5 + 9x) + 12(5 + 9x)^7 dx$$