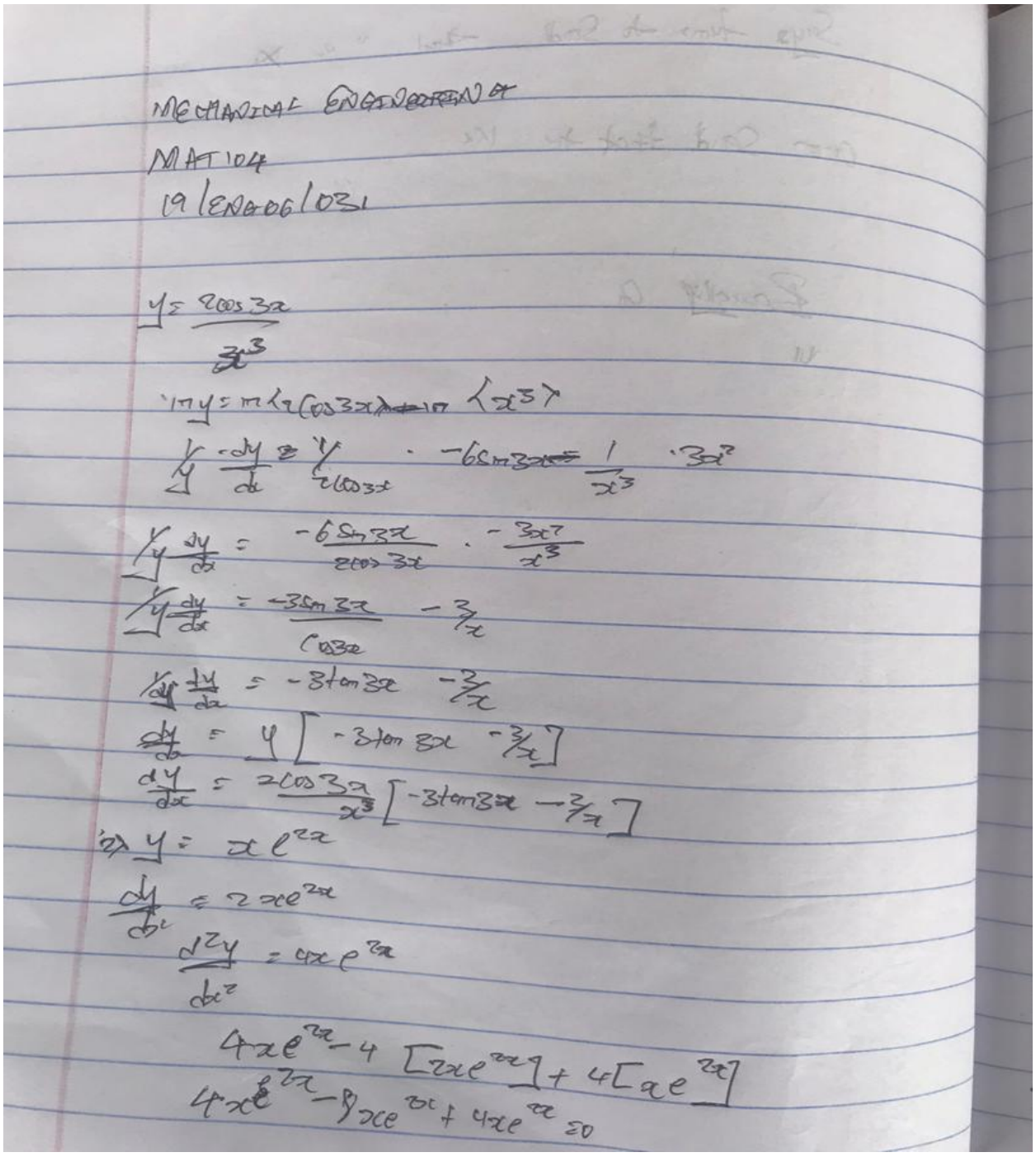
IYAMU UCHENNA PRECIOUS

19/ENG06/031

MECHANICAL ENGINEERIMG

MAT104



Therefore $\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 4y = 0$, is true

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MATRIC NO: 19/ENG06/1031
DEPT: MECHANICAL ENGINEERING.

(4) $\int e^x \sin 2x\,dx$

$u = \sin 2x$, $dv = e^x$

$du = 2\cos 2x\,dx$, $v = e^x$

$\int u\,dv = uv - \int v\,du$

$\int e^x \sin 2x\,dx = \sin 2x \cdot e^x - \int e^x \cdot 2\cos 2x\,dx$

$\int e^x \sin 2x\,dx = e^x \sin 2x - \int e^x \cos 2x\,dx$

$\int e^x \cos 2x\,dx$

$u = \cos 2x$, $dv = e^x$

$du = -4\sin 2x\,dx$, $v = e^x$

$\int u\,dv = uv - \int v\,du$

$\int e^x \cos 2x\,dx = \cos 2x \cdot e^x - \int e^x \cdot -4\sin 2x\,dx$

$\int e^x \cos 2x\,dx = e^x \cos 2x + \int e^x 4\sin 2x\,dx$

$\int e^x \sin 2x\,dx = e^x \sin 2x - e^x \cos 2x - 4\int e^x \sin 2x\,dx$

$I = \frac{e^x \sin 2x - e^x \cos 2x}{5}$

$\int e^x \sin 2x\,dx = \frac{1}{5}[e^x \sin 2x - e^x \cos 2x] + c$.