

University of Technology **Department of Electrical Engineering**

Sem.(2) Final Term Examination 2019-2020 Year: 1st

Subject: Mathematics 2 Division: Electrical Engineering Examiner: Dr. Jasim F. H.

Write A Report



Note: write the report with no more than 5 pages: [21 Marks]

وسام محمود حميد عكله اسم الطالب الثلاثي باللغة العربية:

Time: 10 days

and a) I = S sec 2t dt + S ln (sec x) dx Secret dt = fln secrt + tanzt \ ln (sec x) dx u - lm (secx) = du = Secx tons dix => du = 1 dx $\int \frac{\ln(\sec x)}{\cot x} dx = \int 4 \cdot du = \frac{u^2}{2}$ = 1 (ln (sec 2)) I = \frac{1}{2} ln | sec 2t + tan 2t | + \frac{1}{2} (ln | sec 21)^2 + C Stany dy

the (secy) dy + She (6) seco

Stany dy

Stany dy

Stany dy

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She (5) seco

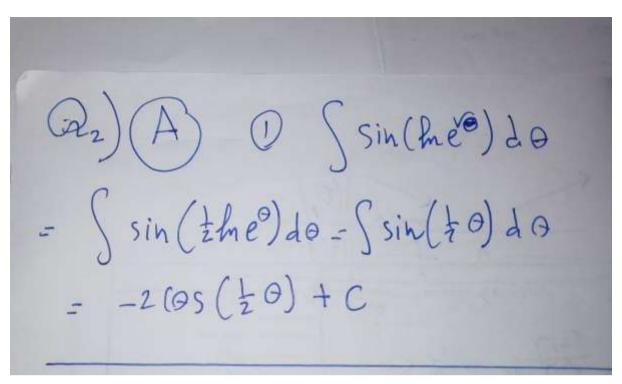
She (6) seco

Seco do = ln(6) (ln|seco+tand)

T = ln |ln|secy| + ln6 · ln|sec + tan + c

Note: for this question, I think there is something wrong with it, I couldn't solve it until I replaced the y^2 by y^3 .

Q1 (d) K= \(\frac{2^2, p. tan p^2 dp+ \(\frac{y \sih q}{\sih q} \) \(\frac{1}{|z|\sigma^2} \) \(\frac{1}{|z|\sigma^2} \) 22. p. tan p2 dp 16/00 po 18/18/ => dydu = 2P dp => d4 - P dp بالتعريض التكامل: (22 U.du - 22 u2+c - 22 (tun'p2)2+c \\ \frac{y\sin^4 \dy - \frac{y^2\sin^4 \x}{2\sqrt{u-a}^3} + C J V 29 d7 = B V 29 , Sec 171 + C ادرة يعبع التكامل، 1 = 22. (tan-1p2)2+ y2 sin 4 + V2y sec | 2 | +C



$$\begin{array}{lll}
\boxed{22} \boxed{3} \boxed{6} & \sqrt{t^3 dt} & = \int \frac{t(t^2 + a^2 - a^2)}{\sqrt{t^2 + a^2}} dt \\
= \int \frac{t(t^2 + a^2) - a^2 t}{\sqrt{t^2 + a^2}} dt & = \int \frac{t(t^2 + a^2)^2 - a^2}{\sqrt{t^2 + a^2}} dt \\
= \int \frac{t(t^2 + a^2) - a^2 t}{\sqrt{t^2 + a^2}} dt & = \int \frac{t(t^2 + a^2)^2 - a^2}{\sqrt{t^2 + a^2}} dt
\end{array}$$

$$Q_{3} = y^{3} - 5y \text{ and } x = 3y - y^{3}$$

$$L(y) = y^{3} - 5y - (3y - y^{3}) = 0 \Rightarrow 2y^{3} - 8y = 0 \Rightarrow 2y(y^{2} - y) = 0$$

$$\Rightarrow 2y = (y - x)(y + x) = 0$$

$$\Rightarrow y = 0 \text{ or } y = x \text{ or } y = -2$$

$$L(y) = 0 + 0 - 0 + 0$$

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$$= \left[y^{3} - 4y^{2} \right]^{2} + \left[y^{3} - 4y^{2} \right]$$

 $Q(y) = y = 2^{2}, y = 2^{2} + 4x$ $Q(y) = 2^{2} - (2^{2} + 4x) = 2^{2} + 4x = 2^{2} + 4x$ $A Vea = \int G(y) dy = \int (e^{xh(x)} - x^{2} - 4x) dx$ $= \left(\frac{1}{h_{1}}(x) - \frac{x^{2}}{3} - 2x^{2}\right)^{2}$ $= \frac{1}{h_{1}(x)} - \left(\frac{2^{2}}{h_{1}(x)} + \frac{64}{3} - 32\right)^{2} = \frac{1}{h_{1}(x)} - \frac{1}{16h_{1}(x)} + \frac{32}{3}$ $= \frac{1}{h_{1}(x)} - \frac{1}{16h_{1}(x)} + \frac{1}{3} + \frac{$