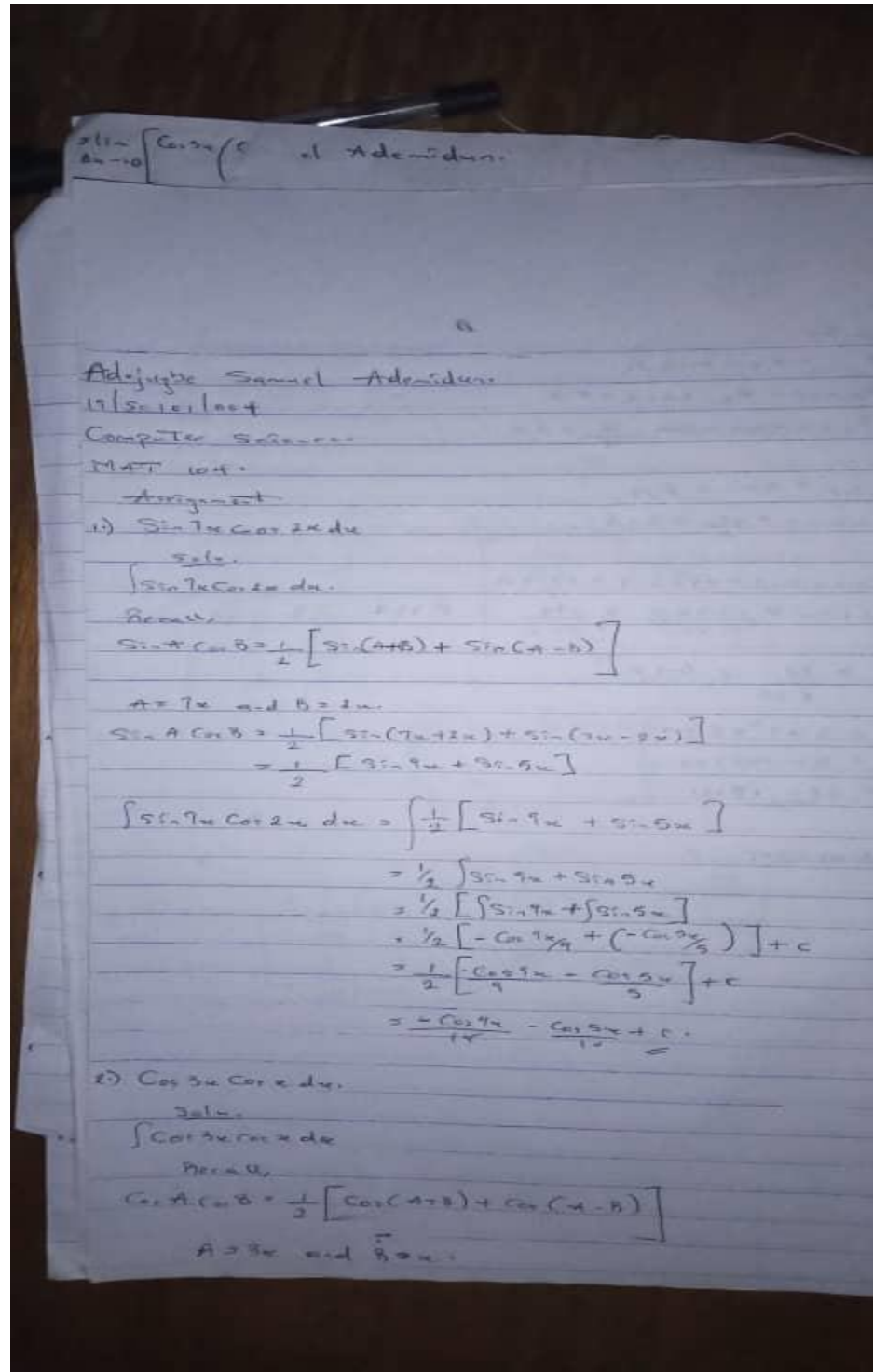


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DEPARTMENT: COMPUTER SCIENCE

MATRIC NO: 19/SCI01/004

ASSIGNMENT



$$\int \cos x \cos x \, dx = \int \frac{1}{2} [\cos 2x + \cos 0] \, dx$$

$$= \frac{1}{2} \int [\cos 2x + \cos 0] \, dx$$

$$= \frac{1}{2} \left[ \frac{\sin 2x}{2} + \frac{\sin 0x}{2} \right] + C$$

$$= \frac{\sin 2x}{4} + \frac{\sin 0x}{4} + C$$

9)  $\frac{\cos x}{\sin^2 x} \, dx$

Soln

$$\int \frac{\cos x}{\sin^2 x} \, dx$$

Let  $x = \sin^{-1} u$

$$\frac{dx}{du} = \frac{1}{\cos x}$$

$$dx = \frac{1}{\cos x} du$$

$$dx = \frac{1}{\cos x} du$$

we have,

$$\int \frac{\cos x}{\sin^2 x} \, dx = \int \frac{\cos x \times 1}{\sin^2 x \times \frac{1}{\cos x}} \, dx = \int \frac{1}{\sin^2 x} \, du$$

recall,  $u = \sin^{-1} x$

$$\int \frac{1}{u^2} \, du = \int u^{-2} \, du$$

$$= \left[ \frac{u^{-2+1}}{-2+1} \right] = \frac{u^{-1}}{-1} = -u^{-1} = -\frac{1}{u} = -\frac{1}{\sin x}$$

11)  $\int_{a=0}^{c=20} (c-2x) dx$  ad. Adm. - Adm.

P. 11)  $\int_0^{20} (20-2x) dx$

1)  $\int_0^{20} 20 dx$

2)  $\int_0^{20} -2x dx = -x^2$

3)  $\int_0^{20} 20 dx = 20x$

4)  $\left[ \frac{20x^2}{2} - x^2 \right]_0^{20} = \frac{20(20)^2}{2} - (20)^2$

$= \frac{8000}{2} - 400 = 4000 - 400$

$= \frac{3600}{2} = 1800$