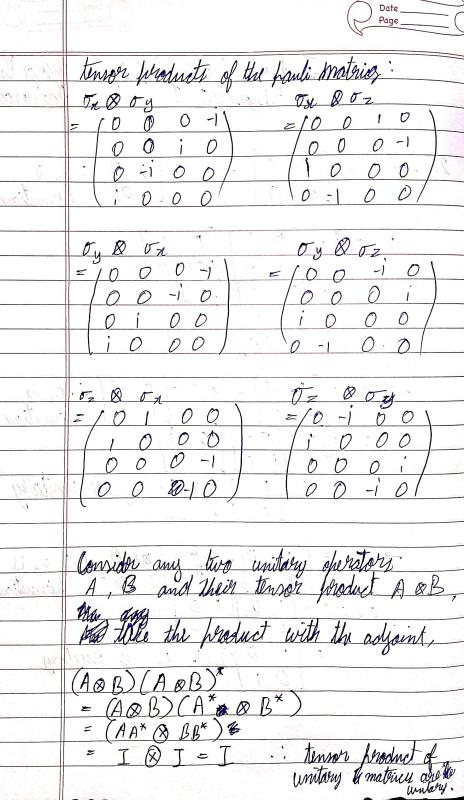
- 10 m	classmate Date Page
	Interes to Quantum Computing yearge Paul Assignment 1 2021121006
2.	$\Rightarrow \sigma_{\mathcal{A}} = \begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix} = \sigma_{\mathcal{A}} \times = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} \therefore \sigma_{\mathcal{A}} \text{ is}$ $\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix} \Rightarrow $
	$0\pi 0\pi^{*} = .01 01$ $0 0 01$ $0 0 01$ $0 01$
	i on is unitary
	$ \frac{1}{\sqrt{2}} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ $
	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
	7 100 00 000



hure, all o; & o; are unitary. When taking the adjoints of all the o; & o; they remain the same-(o; Q o;)=(o; Q o;)* in they are all herenitian. Since Pis a Projector,

P-PP=P²

I=P Show It a be an liginsector associationed with 2, an eigenvalue of P. APa = 2a : Pisa projector Cring O
: Pisa projector
-> 2

6 b) Consider Horaitaon aperators A and B and their tensor product A & B Att taking its product with its adjoint. (A & B) (A & B) * = (A & B) (A* & B*) = (A A* & BB*) = (I & I) = I : (ABB) is the unitary as Consol Hornitian charactors Consider the Bell states as columns in a matrix. the columns of A : e. Bell Statue are an orthonormal havis