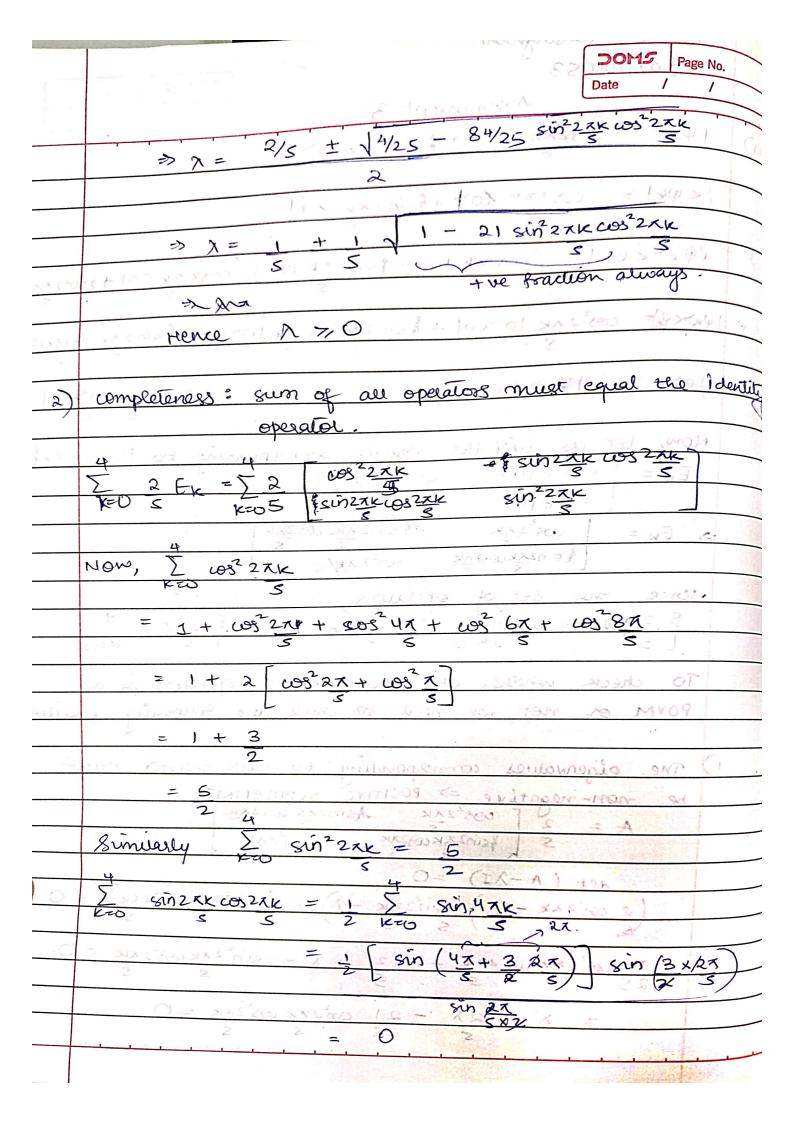
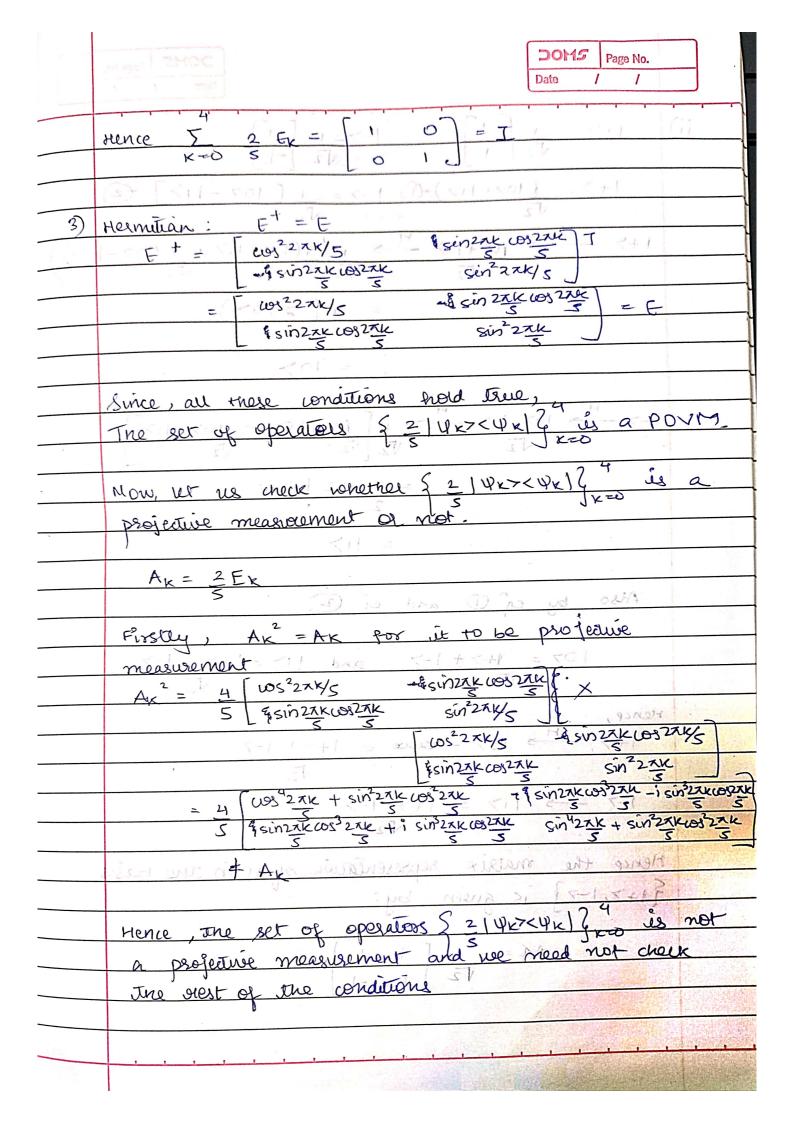
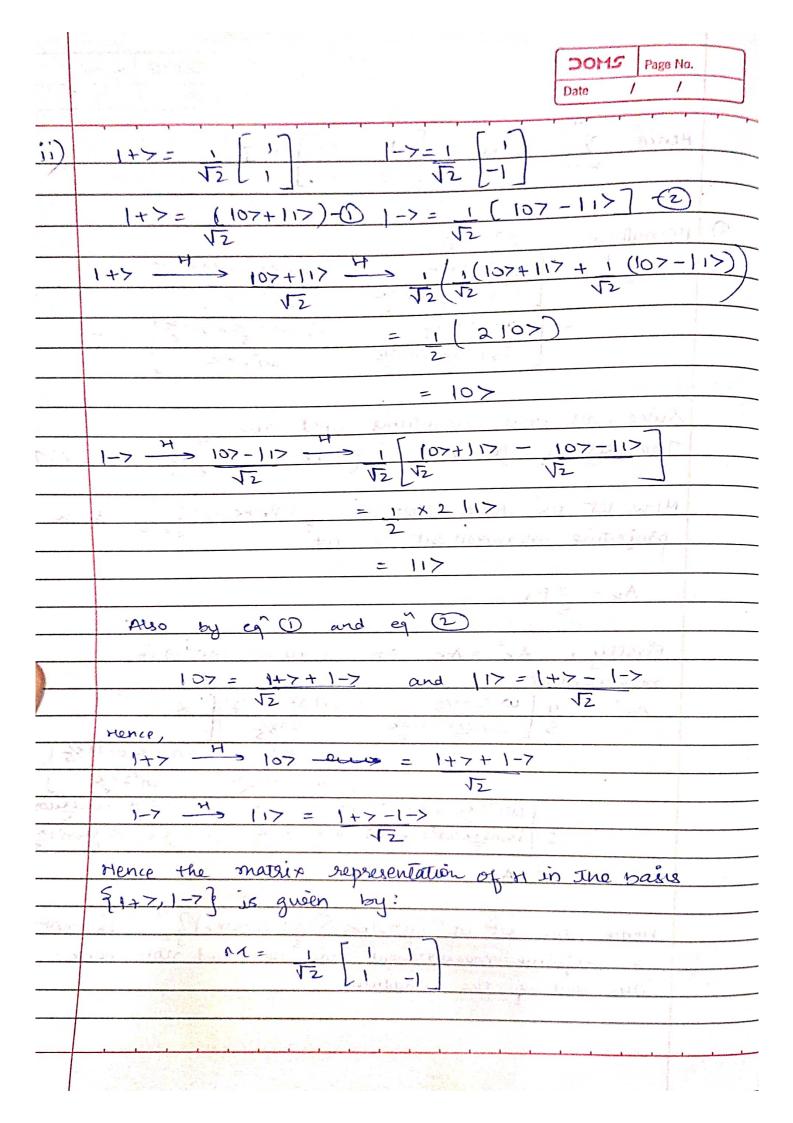
Romica Raisinghani	
2021101053 DOMS Page No.	]
Date / /	1
Assignment-3	
@1) 14x> = coszxk 10>+ (sin2xk)1>	
5	
< 4x1 = cos2xx (0) + (sin2xx < 1)	,
2 - 1 - 3 + 1 / 2 = 1	intervenient op de la company de la comp
$ \Psi \times 7 < \Psi \times   = \left( \frac{\cos 2x \times 107 + \sin 2x \times 117}{5} \right) \left( \frac{\cos 2x \times 40}{5} + \frac{\cos 2x}{5} \right)$	ruc II
CHANGE OF HILL & HAS - S	5
=>   VKXV/= COS^22XK   O>CO  + & sin2XK, 27XK 11>CO  + & sin2XK, 201XK	10><1
S 5 5 5 8	
Let $E = 1 \psi_{K} \times \langle \psi_{K} \rangle$ + $\sin^{2} 2\pi \kappa  1 \times 1 $	(
S	
Now, let us find the matrix corresponding by INDS < Wh	<del></del>
	<u>-Y</u>
T N	
<1/E/17 <1/E/17 <1/E/17 == 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1	
> Ex = COS^2ZK 29 SW2ZK COS^2ZK	
\$ sin2xklos2xk sin2xx/s sin 1011	
rence the set of operators	
\[ \langle 2 \  \psi \rangle \psi \rangle \  \langle \	
( ) [ ] ( ) [ ]	
To check whether the above set of operators is a	
POVM or not, we need to check the following condit	iènsô
Sand of the sand	
1) The eigenvalues corresponding to each operator must	
be non-negative => POSITIVE SEMIDEFINITE	
$A = 2 \left[ \cos^2 2\pi k - d \sin 2\pi k \cos^2 2\pi k \right]$	
be non-negative $\Rightarrow$ POSITIVE SEMIDEFINITE $A = 2 \left[ \cos^2 2\pi k - 4\sin 2\pi k \cos 2\pi k \right]$ $5 \left[ \sin 2\pi k \cos 2\pi k \right] \sin^2 2\pi k $	
$\det (A - \lambda I) = 0$	And The second
$\frac{\left(2 \cos^2 2 \pi k - \chi\right) \left(2 \sin^2 2 \pi k - \chi\right) - \left(\sin^2 2 \pi k \cos^2 \pi k\right) = 0}{5}$	
$4 \cos^{2}(2x) \cos^{2}(2x) = 2(x)^{2} - 2(x)^{2$	
$\frac{4 \cos^{2} 2x k \sin^{2} 2x k - \lambda x^{2} + \lambda^{2} - \sin^{2} 2x k \cos^{2} 2x k}{25} = \frac{5}{5}$	
2 -02 -01 (m²) x1 (m²) x1 - M	
$\frac{3}{5} + \frac{2}{5} + \frac{2}$	

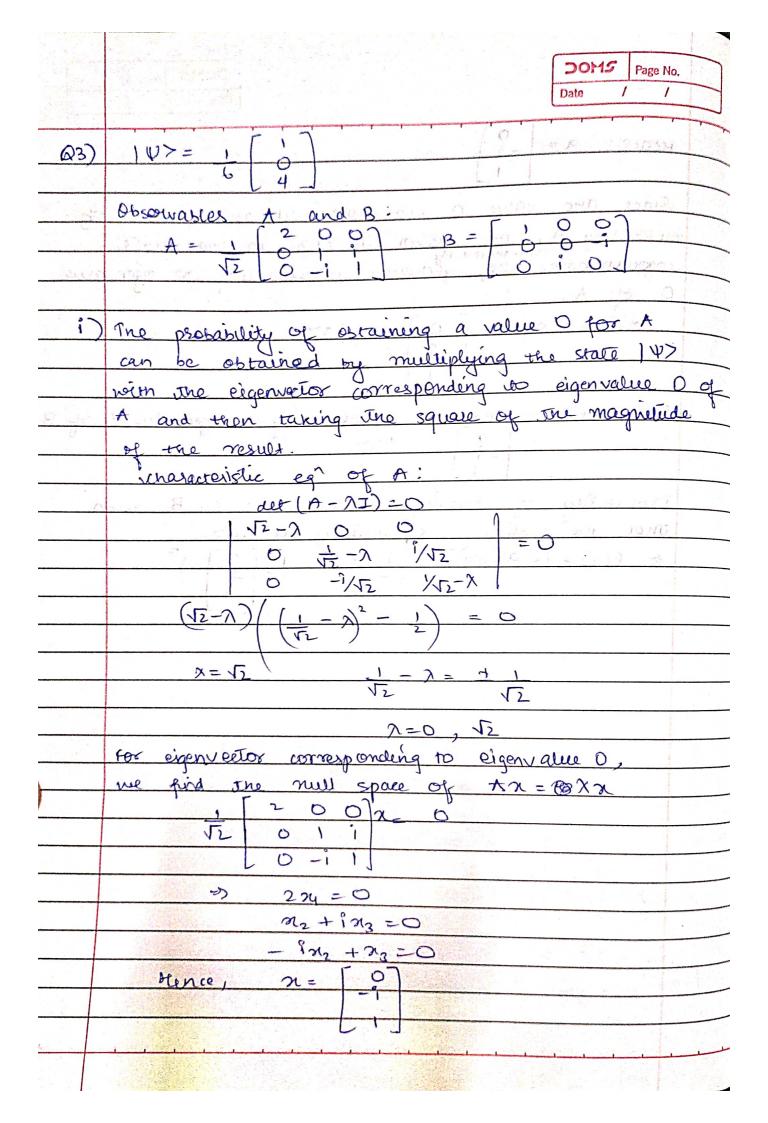


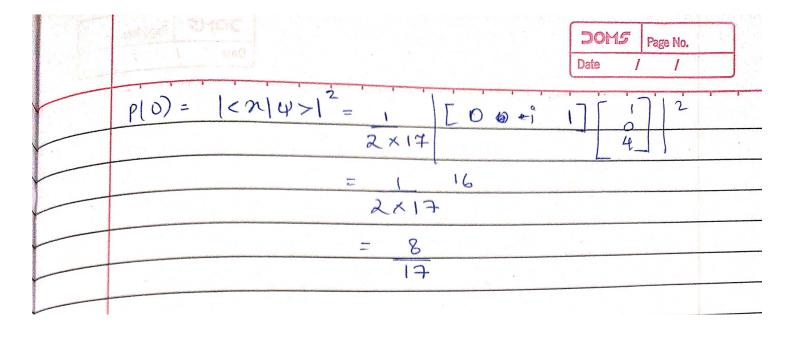


2)	For the walsh- Hadamard Transformation:
	$\frac{107}{\sqrt{2}} \longrightarrow \frac{1}{\sqrt{2}} \left( 107 + 117 \right)$
	$\sqrt{2}$
	$\frac{117}{\sqrt{2}} \rightarrow \frac{1}{\sqrt{2}} \left(102 - 112\right)$
14	51 31 32
1)	The matrix representation of a linear transformation can
	be found by applying the transformation to the
-	standard basis and expressing the regult as a linear
	standard basis and expressing the regult as a linear
	Hence the marix representation for this transformation
	is given by:
	M= [1/12 1/12] = 1 [1]
	$M = \begin{bmatrix} 1/\sqrt{2} & 1/\sqrt{2} \\ 1/\sqrt{2} & -1/\sqrt{2} \end{bmatrix} = 1 \begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix}$



iii) As found in part 1, the matrix representation of 4
in the basis (\$107,1183 is given by:
$M = \frac{1}{\sqrt{2}} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$
V2 L1-1
$ \frac{(af(M) = 1 \left[ -1 - 1 \right]}{\sqrt{2} \left[ -1 \cdot 61 \right]} = adj(M) $
$ M  = (1)^{2}(-1-1) = N2) = -1$
$M^{-1} = adj(M) = \frac{1}{\sqrt{2}} \begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix} = M$ $1M) \qquad \sqrt{2} \begin{bmatrix} 1 & -1 \\ 1 & -1 \end{bmatrix}$
Hence, inverse of walsh-Hadamard Transform is the Transform Process True means that applying the Transform
twice well states.





	von since 0 is obtained as a result of measurement.  A, the state of the system is: $ a\rangle = [0]$
+	< 2012 \ 2011 \ 2
+	
+	characteristic eg $^{\circ}$ of $^{\circ}$ B: $det(B-\lambda I)=0$
	$det(B-\lambda I) = 0$
	1-2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
-	0 i ->
	$(1-x)[x^2-1]=0$
	$\lambda = \{1, -1\}$
	for $\lambda=1$ , $\beta x=\lambda x$
	$\Rightarrow 8n = n$
	$\Rightarrow (B-I) = 0$
	$\begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & -1 & -1 & 1 \\ 0 & 1 & 1 \end{bmatrix} = 0$
	0 -1 -1   2
	[0;-1][n3]
	$34 = 0$ $-34 - 173 = 0$ $\Rightarrow 312/33 = -1$
1	$1m_2 - m_3 = 0 \Rightarrow m_2/m_3 = 1/i = -i$
	Hence, $n = [0]$
	10000
	> <ap(d= 12a1x="">12 = 1/[0:1][0]</ap(d=>
	2×2
	2
7.5	4
	= 1