Goup 17 Question 7. Tut 5 X[n] - Sin (711) - (03) (717) (10 hen = sin (nyx) @ m. $\frac{\sin\left(\frac{\pi h}{6}\right)}{\frac{\pi h}{6}} = \frac{1}{6} \frac{\sin\left(\frac{h}{6}\right)}{\sin\left(\frac{h}{6}\right)}$ h(eiw) => TIL this is a low pass filter & if we consider with cutoff freq T/6. $\therefore Y[n] = \sin(\pi n)$. cos (In) will get feltered out. h[n] = hz (ejw) 4 (eiv)

$\begin{aligned} & \cdot \cdot \cdot \cdot \text{Y[n]} = \text{H(e}^{\text{jn}_{2}} \text{ } \text{H(e}^{\text{jn}_{2}}) \text{ } \text{sin} (\frac{\pi n}{n}) - \text{ } $	_	
$\therefore \text{ Y[N]} = 2 \sin(\pi n) - \cos(\pi n)$ $\text{ In } (\pi n) + \sin(\pi n)$ $\text{ In } (\pi n) \times \sin(\pi n)$ $\text{ In } (\pi $		$Y[n] = H(e^{j\pi k}) \left H(e^{j\pi k}) \left \sin \left(\frac{\pi n}{6} \right) - H(e^{j\pi k}) \right \cos(\pi n)$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		[here $\angle H(e^{j\eta x}) = \angle H(e^{j\eta x}) = 0$].
$=\frac{\sin (\pi n)}{\pi n} \times \frac{\sin (\pi n)}{\pi n}$ $\frac{\sin (\pi n)}{\pi n} \times \frac{\sin (\pi n)}{\pi n}$ $\frac{\ln(n)}{\ln(n)} \times \frac{\ln(n)}{\ln(n)}$ $\frac{\ln(n)}{\ln(n)} \times \ln$		$: Y[n] = 2 \sin(\pi n) - \cos(\pi n). $
$=\frac{\sin (\pi n)}{\pi n} \times \frac{\sin (\pi n)}{\pi n}$ $\frac{\sin (\pi n)}{\pi n} \times \frac{\sin (\pi n)}{\pi n}$ $\frac{\ln(n)}{\ln(n)} \times \frac{\ln(n)}{\ln(n)}$ $\frac{\ln(n)}{\ln(n)} \times \ln$		
$\frac{\pi n}{h_1(n)} \frac{\pi n}{h_2(n)}.$ $\frac{H(e^{j\omega})}{H_1(e^{j\omega})} = \frac{H_1(e^{j\omega})}{H_2(e^{j\omega})}.$ $\frac{H_1(e^{j\omega})}{H_2(e^{j\omega})} = \frac{\pi}{2u}.$ $\frac{\pi n}{h_1(e^{j\omega})} = \frac{\pi}{2u}.$ $\frac{\pi n}{h_1(e^{j\omega})} = \frac{\pi}{2u}.$	(a) 1	9/
$H_{1}(e^{j\omega})$ $H_{2}(e^{j\omega})$ $H_{2}(e^{j\omega})$ $H_{3}(e^{j\omega})$ $H_{4}(e^{j\omega})$ $H_{5}(e^{j\omega})$ $H_{5}(e^{j\omega})$ $H_{6}(e^{j\omega})$ $H_{7}(e^{j\omega})$ $H_{8}(e^{j\omega})$ $H_{8}(e^{j\omega})$ $H_{8}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{1}(e^{j\omega})$ $H_{2}(e^{j\omega})$ $H_{3}(e^{j\omega})$ $H_{4}(e^{j\omega})$ $H_{5}(e^{j\omega})$ $H_{6}(e^{j\omega})$ $H_{8}(e^{j\omega})$ $H_{8}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{1}(e^{j\omega})$ $H_{1}(e^{j\omega})$ $H_{2}(e^{j\omega})$ $H_{3}(e^{j\omega})$ $H_{4}(e^{j\omega})$ $H_{5}(e^{j\omega})$ $H_{8}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{1}(e^{j\omega})$ $H_{1}(e^{j\omega})$ $H_{2}(e^{j\omega})$ $H_{3}(e^{j\omega})$ $H_{4}(e^{j\omega})$ $H_{5}(e^{j\omega})$ $H_{6}(e^{j\omega})$ $H_{8}(e^{j\omega})$ $H_{9}(e^{j\omega})$ $H_{9}(e^{j\omega}$		πη
$H(e^{jw}) = \frac{1}{\sqrt{1}} \frac{1}{\sqrt{2}} \frac{1}{2$	4	$H(e^{j\omega}) = H_1(e^{j\omega}) * H_2(e^{j\omega}).$
$H(e^{j\omega}) = \frac{T_{4}}{-5\pi_{4}^{2} - 7\pi_{4}^{2}} = \frac{5\pi_{4}}{2\mu}$ $H(e^{j\omega}) = \frac{5\pi_{4}^{2}}{-5\pi_{4}^{2} - 7\pi_{4}^{2}} = \frac{5\pi_{4}^{2}}{2\mu}$ $H(e^{j\pi_{4}^{2}}) = \frac{5\pi_{4}^{2}}{2\mu}$	М.	*
$\frac{-5\% - \% - \%}{ \mathcal{H}(e^{j7\%}) } = \frac{5\pi}{24}$ $ \mathcal{H}(e^{j7\%}) = \pi$ $ \mathcal{H}(e^{j7\%}) = \pi$	λТ	Ty4.
$ \frac{1}{\sqrt{2}} \frac{1}{\sqrt$		H(610)=
$ \mu(e^{j\pi/3}) = \pi$ $ \mu(e^{j\pi/3}) = \pi$		-5/2 -7/4 -1/8 0 T/8 T/4. 5T/8
	1	
$\frac{5\pi}{24} = \frac{5\pi}{6} = \frac{\pi}{24} = \frac{\pi}{3}$		
	-	$\frac{7[n] = \frac{5}{24} \pi \sin\left(\frac{\pi n}{6}\right) - \frac{\pi \cos\left(\frac{\pi n}{3}\right)}{24}$

