Instruction:

1. **All questions are compulsory**
2. **Draw neat diagrams**
3. **Assume suitable data if necessary**
4. **If answers of explain or discuss are identical or appears to be copied, NO student gets marks for those questions**

Q. No.		Marks	CO
Q.1 (a)	The impulse response of LTI System h(n) = $\left(\frac{1}{a}\right)^n \cdot u(n)$ Find the response of the system when input x(n) = $(a)^n \cdot u(n)$ by Fold, Shift, Multiply and sum concept. Verify your results using Tabular Method. where a is the last digit of your UCID Number. for example: if your UCID is 2020201063, then take a = 3.	5M	CO1
Q.1 (c)	"If energy of a given discrete signal x(n) is finite, power of that signal will be zero" Justify this statement with the help of a numerical example.	5M	CO1
Q.2 (a)	For a given 8-point discrete signal x(n), the Fourier equivalent is given as X(k)= {36, 4 - j9.656, -4 + j4, 4 - j1.6569, -4}. Find X(k) for k=5, 6 and 7 If your UCID Number is ODD, Find the original signal x(n) using IFFT-DIT If your UCID Number is EVEN Find the original signal x(n) using IFFT-DIF	5M	CO2
Q.2 (b)	Compute the 5-point DFT sequence x(n) = cos($\frac{n\pi}{2}$) using DFT standard formulae. **OR** Compute the 5-point DFT sequence x(n) = sin($\frac{n\pi}{2}$) using DFT standard formulae.	5M	CO2
Q.2 (c)	Perform Linear Filtering of the following sequences x(n) = {1, 2, 3, 4, 5, 6, 7, 8} and h(n) = {1, 1, 1} if your last UCID Number is odd, use Overlap Add Method	5M	CO2