

2125
M.E. (Electronics and Communication Engineering)
First Semester
ECE-1101: Advanced Digital Signal Processing
(For UIET only)

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Part.

x-x-x

1.	i. Differentiate between convolution and correlation. ii. Name one commonly used window in FIR filter design. iii. What is meant by aliasing in multirate systems? iv. State any 2 applications of Wiener filters. v. Give an example of a DSP chip family, and mention its 2 features.	2x5
PART A		
2.	Explain the Discrete Fourier Transform (DFT) and derive the computational advantages of the Fast Fourier Transform (FFT).	10
3.	i. Write short notes on the Bilinear Transformation Method for IIR filters. ii. What is the Finite Word Length Effect in digital filters?	5, 5
4.	i. Define Polyphase Decomposition and mention its importance. ii. What are QMF banks? Give their applications.	5, 5
PART B		
5.	i. Differentiate between AR, MA, and ARMA models. ii. What is a Wiener Filter? State its applications.	6, 4
6.	Describe the LMS Adaptive Filtering Algorithm and discuss its convergence behaviour.	10
7.	i. Mention the key differences between fixed-point and floating-point DSP processors. ii. What are Interrupts in DSP chips? Explain their role briefly.	4, 6

x-x-x