



1st IA QUESTION PAPER SCHEME (2022-23)

Class : IV ECE
Subject: DSP
Date : 06.07.2023

Max. Marks: 50
Subject code: 21EC42
Faculty Name: Abdul Jabbar

Question number		Explanation	Mark split up		Total marks
1	a	Proof for sampling of Fourier transform of a sequence $x(n)$ results in a N point DFT using which both the sequence and the transform can be reconstructed.	10	10	20
	b	$X(K) = \{10, 2+j2, -2, 2-j2\}$ $H(K) = \{7, 1+j2, -1, 1-j2\}$ $X(K) \cdot H(K) = \{70, -2+j6, 2, -2-j6\}$ $y(n) = \{17, 14, 19, 20\}$	03 03 01 03	10	
2	a	$X(K) = \{6, -0.707-j1.707, 1-j, 0.707+j0.293, 0, 0.707-j0.293, 1+j, -0.707+j1.707\}$ Magnitude Spectrum Phase Spectrum	08 01 01	10	20
	b	$X(K) = \{6, -4, 6, -4\}$ $H(K) = \{6, -1-j5, -4, -1+j5\}$ $X(K) \cdot H(K) = \{36, 4+j20, -24, 4-j20\}$ $y(n) = \{5, 5, 1, 25\}$	03 03 01 03	10	
3	a	(i) $X(0) = 13$ (ii) $X(6) = -13$ (iii) 36 (iv) -48 (v) 1500	01 01 02 03 03	12	30
	b	Ans: $y(n) = \{-4, 20, 0, -19\}$ (i) Concentric circle method (ii) Matrix method	04 04	08	
	c	$DFT[a^n] = (1-a^N) / (1-ae^{-j2\pi k/N})$ $DFT\{\cos[2\pi k_0 n/N]\}$	05 05	10	

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4	a	(i) $s(n) = x((n+3))_6 = \{3, 4, 0, 0, 1, 2\}$ (ii) $y(n) = 1/2[x(n) + x((-n))_6] = \{0, 0.5, 3, 3, 3, 0.5\}$ (iii) $z(n) = (1/2j)[x(n) - x((-n))_6] = \{0, (1/2j), j, 0, j, (-1/2j)\}$	04 03 03	10	30
	b	$X(k) = X^*(N-k) = X^*((-k))_N$ $K1 = 86; K2 = 189; K3 = 386; K4 = 487$	02 08	10	
	c	Statement of any five properties Each Property carries 2 Marks	10	10	


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INTERNAL ASSESSMENT ASSIGNMENT BOOK

NAME OF THE STUDENT : ARSHEEN ARA

YEAR : 2nd year 2022-2023 BRANCH : ECE SECTION : —

ROLL/UNIVERSITY SEAT NUMBER : 4BP21ECDD4

SUBJECT : DIGITAL SIGNAL PROCESSING [21EC42]

	DATE	MAX. MARKS	MARKS OBTAINED	TEACHER'S INITIAL	REMARKS
FIRST ASSIGNMENT	30/08/23	10	10	<u>AB</u>	- very good -
SECOND ASSIGNMENT	22/09/23	10	10	<u>AB</u>	- Very good -
THIRD ASSIGNMENT		5			
FINAL ASSIGNMENT		5	<u>10/10</u>		

FINAL ASSIGNMENT MARKS IN WORDS : Ten only


Signature


Staff


HOD


Principal