

Quiz-3Answer **ALL** the questions

Total marks - 20

* Always round off your results to two places after the decimal point whenever necessary. For example 12.34556 becomes 12.35, and 12.34456 becomes 12.34.

1. Compute DFT of the following function: $f(x) = 5 \delta(x)$ for $x = 0, 1, 2$ and 3 where $\delta(x)$ is unit impulse function. Fill the following table. **(0.5 x 8 = 4 marks)**

DFT of $f(x)$

x	$f(x)$	$F(u)$
0		
1		
2		
3		

Hint: Unit impulse is 1 when $x=0$ and it is 0 elsewhere.

2. Compute DFT for the following $f(x)$ and fill in the table below: **(0.5 x 16 = 8 marks)**

$$f(x) = [j, 0, j, 1].$$

$F(u)$	Magnitude	Phase	Power spectrum

3. Compute Fourier Transform for the following $f(x)$ using FFT method. Show all the stages, intermediate results, and the final results in the Butterfly approach clearly. Write your $F(u)$ in two decimal places. **(1 x 8 = 8 marks)**

x	0	1	2	3	4	5	6	7
f(x)	5	4	3	2	1	0	4	6
F(u)								

Write your Butterfly approach diagram here

-----**Rough Work Sheet**-----

(Do not detach it)

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(Do not detach it)