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**SNS College of Technology, Coimbatore-35.**

**(Autonomous)**

**B.E/B.Tech Internal Assessment - II**

**Academic Year 2023-2024(Even)**

**Fourth Semester**

**Electronics and Communication Engineering**

**19ECB212 – Digital Signal Processing**

**B**

**Time: 1<sup>1/2</sup> Hours**

**Maximum Marks: 50**

**Answer All Questions**

**PART - A (5 x 2 = 10 Marks)**

			<b>CO</b>	<b>Blooms</b>
1.		How will you determine the order N of Chebyshev filter?	CO2	Rem
2.		Compare Impulse Invariant and Bilinear transformation.	CO2	Und
3.		List the steps involved in FIR filter design.	CO3	Ana
4.		Compare hamming window and hanning Window.	CO3	Und
5.		Recall the equation for blackman window sequence.	CO3	Rem
<b>PART – B (2 x 13 = 26 Marks) (1 x 14 = 14 Marks)</b>				
			<b>CO</b>	<b>Blooms</b>
6.	(a)	Outline the design procedure for Chebyshev Filter.	13 CO2	Und
		(or)		
	(b)	Construct Direct Form – I and Direct Form – II form realization of the system described by the equation. $y(n) - 5/6 y(n-1) + 1/6 y(n-2) = x(n) + 2x(n-1)$	13 CO2	App
7.	(a)	Build a linear phase FIR lowpass filter using rectangular window by taking 7 Samples of window sequence and with a cutoff frequency of $\omega_c = 0.2\pi$ rad/sample.	13 CO3	App
		(or)		
	(b)	Explain the design procedure for FIR filters using windowing techniques.	13 CO3	Und

8.	(a)	Construct a linear phase FIR highpass filter using hamming window with a cutoff frequency of <b>1.2rad/sample</b> and <b>N=9</b>	14	CO3	App
		(or)			
	(b)	Analyze the bandpass filter to pass frequencies in the range 1 to 2 rad/sam using hanning window with N=5.	14	CO3	Ana
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**Abbreviations:**

**CO** – Course Outcomes; **Rem**- Remembering; **Und** – Understanding; **App** – Applying; **Ana** – Analyzing; **Eva** – Evaluating; **Cre**- Creating