EC401 Digital signal processing

Unit-IV

One mark questions:

1. What are the different types of filters based on impulse response?
2. Give any one limitation of digital filters
3. Define Gibbs phenomenon.
4. Give the equation specifying rectangular window.
5. Give the equation specifying triangular window.
6. Give the equation specifying hamming window.
7. Give the equation specifying hanning window.
8. Give the equation specifying Blackmann window.
9. Give the equation specifying kaiser window.
10. What are the different design techniques used for FIR filter design?
11. What is the criterion for the selection of a window in FIR filter design?
12. Why FIR filter is always stable?
13. FIR filters are all pole system. [Yes/No]
14. Give the properties of FIR filter.
15. List the limitations of FIR filters.
16. State the condition for digital filter to be causal and stable.
17. Write the condition for linear phase.
18. What are the disadvantages of Fourier series method of designing FIR filters?
19. What is the need for employing window technique for FIR filter design?
20. Draw the various ideal filter characteristics.

Two marks questions:

1. What are the different types of filters based on impulse response?
2. What are the different types of filters based on frequency response?
3. List the steps involved in the design of FIR filters using windows.
4. What are the advantages of Kaiser window?
5. For what type of filters frequency sampling method is suitable?
6. Draw the direct form realization of a linear Phase FIR system for N even.
7. Draw the direct form realization of a linear Phase FIR system for N odd
8. What is transposition theorem & transposed structure?
9. Write Different expressions for different filter types.
10. Draw the direct form realization of FIR system.

Five marks questions:

1. Realize the FIR filter with the transfer function:
   $H(Z) = 1+2Z^{-1} -3Z^{-2} -4Z^{-3}+5Z^{-4}$ using direct form.
2. Realize the FIR filter with the transfer function:
   $H(Z) = (1+2Z^{-1}- Z^{-2}) (1+Z^{-1}-Z^{-2})$ using cascade form.