

SEM	SET	PAPER CODE	TITLE OF THE PAPER
II	2014	14PEL2106	DIGITAL SIGNAL PROCESSING

**SECTION – B****Answer all the questions:****5 x 5 = 25**

31. a. List down the procedure to perform circular convolution using circle method.

**OR**

- b. Perform the linear convolution of  $x(n)$  and  $h(n)$ , where  $x(n) = \{1,2,3,4\}$  and  $h(n) = \{1,1,1,1\}$  using cross table method.
32. a. Draw the flowchart for Remaz exchange algorithm and explain the function of each block.

**OR**

- b. Explain the comparison of various design methods for linear – phase Finite Impulse Response (FIR) filter with necessary characteristics graphs.
33. a. With neat characteristics graph of Elliptic filter, explain its operation and also give the necessary equations.

**OR**

- b. Describe the characteristics of low pass Butterworth with neat pole positions illustrations.
34. a. How two's – complement number is represented? Explain its process and format.

**OR**

- b. Explain the direct – form realization of FIR filter in sampling rate conversion by I/D factor using relevant structures.
35. a. Explain the working of modern radar system with neat block diagram.

**OR**

- b. Write a short note on Transmultiplexers.

### **SECTION – C**

**Answer any THREE questions:**

**3 x 15 = 45**

36. Determine the DFT of the given data sequence  $x(n) = \{2,1,4,6,5,8,3,9\}$  by decimation – in – frequency FFT algorithm.
37. Explain the design procedure of optimum Equiripple Linear – Phase Fir filter with following case studies (i) symmetric unit sample response and M odd (ii) Symmetric unit sample response and M even and (iii) Antisymmetric unit sample response and M odd.
38. Describe the method of designing IIR filter by approximation of derivatives and also draw the illustration between s-plane and the z-plane.
39. Explain the process of reducing the sample rate by a factor D of a signal with necessary diagrams and equations.
40. With neat block diagram and filter characteristics, explain the working of sub-band speech coder.

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