Code: 13A04803

R13

B.Tech IV Year II Semester (R13) Regular & Supplementary Examinations April 2018

ADVANCED DIGITAL SIGNAL PROCESSING MULTIRATE & WAVELET

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Mention two applications which require time frequency analysis.
(b) Define dilation and contraction.
(c) What are vanishing moments?
(d) Mention two properties of Daubechies wavelets.
(e) State the condition of admissibility of CWT.
(f) Define the Gabor wavelet and give its advantages over Fourier transform.
(g) What is a wavelet packet?
(h) What is the use of the lifting method?
(i) Define a fractal.
(j) Mention how wavelets can be used for transient analysis.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Describe the use of wavelets for image compression.

OR

3 Explain the principle of multi-resolution analysis using wavelets.

UNIT – II

4 Describe the two band filter bank design for dyadic wavelets.

OR

5 (a) Explain the properties of biorthogonal wavelets.
(b) Explain the JPEG 2000 compression standard.

UNIT – III

6 Describe the uncertainty principle and its implications.

OR

7 Define the continuous wavelet transform and explain its application in wide band correlation processing.

UNIT – IV

8 (a) Define discrete WT and explain the discretization stages from CWT to DWT.
(b) Explain how the spline function can be used to construct wavelets.

OR

9 Describe variants of the wavelet transforms and its implementation structures.

UNIT – V

10 Describe the use of wavelets in analyzing one dimensional biomedical signal.

OR

11 Explore how the wavelet transforms can be applied for wavelet based modulation and demodulation.

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