Register Number: ……..

M.E DEGREE EXAMINATIONS: NOV/DEC 2012

Third Semester

APPLIED ELECTRONICS

ANE511: DSP Integrated Circuits

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1. Find the two's complement representation of $(-0.8235)_{10}$.
2. What are the different techniques available for memory size reduction?
3. Draw the signal flow graph of a digital filter in time domain & frequency domain.
4. Define the phase function & group delay function of LSI system.
5. Find the filter length of half band FIR filter for f_c=400kHz,f_s=600kHz,f_{sample}=3MHz, A_{min}=60dB and δ_2=0.001.
6. Draw the basic FFT butterfly model with scaling and quantization.
7. What are the major phases of complex DSP system design?
8. What are the classifications of MOS logic?
9. Define the term systolic arrays.
10. What is a meant by shared memory architecture?

PART B (5 x 16 = 80 Marks)

11. a) (i) Discuss the various types of redundant number systems in detail. (10)

    (ii) Explain the working principles of S-P Multiplier in detail. (6)

(OR)

    b) (i) With neat diagram, Explain the basic shift accumulator unit in detail. (10)

    (ii) Explain the concepts of improved shift accumulator in detail. (6)

12. a) Write short notes on:
    (i) Sampling of analog signal & selection of sampling frequency
    (ii) Frequency response of LSI system

(OR)

    b) (i) In detail, explain the concept of adaptive DSP algorithms. (11)

    (ii) Explain the concepts of image coding in detail. (5)

13. a) What are the different types of signal level scaling techniques? Explain the same in detail.

(OR)

b) Discuss about the various types of parasitic oscillations of filter networks in detail.

14. a) (i) Explain the various steps of DSP based system design in detail. (8)

(ii) Explain the different types of MOS logic supported for DSP system design in detail. (8)

(OR)

b) (i) Explain the concepts of Integrated circuit design in detail. (6)

(ii) Discuss about the VLSI process technologies in detail (10)

15. a) (i) In detail, explain the concept of wave front arrays. (6)

(ii) Explain ,how arithmetic operations of DSP algorithms are implemented based on complex PE's. (10)

(OR)

b) Explain the DSP based system design concepts of an interpolator system in detail.

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