

M.Tech. CElectronics-VLSI Sem-II CBCS 2015 : Winter 2017
SUBJECT: ADVANCED DIGITAL SIGNAL PROCESSING

Day : Monday
Date : 27-11-2017
W-2017-2808
Time: 11.00 A.M. To 2.00 P.M
Max. Marks: 60.

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Both the sections should be written in **SEPARATE** answer books.
- 4) Assume suitable data, if necessary.

SECTION-I

Q.1 What is meant by forward linear prediction? Explain in detail. (10)

OR

Describe any two properties of linear prediction filters.

Q.2 What is the major difference between RLS and LMS adaptive algorithms? Explain. (10)

OR

What are the characteristics of adaptive filters? Justify the need of adaptivity.

Q.3 What is power spectrum? How can energy density spectrum be determined? (10)

OR

Give the estimate of auto-correlation function and power density for random signals.

SECTION-II

Q.4 Explain the following terms for a typical DSP processor: (10)

- a) Zero overhead looping
- b) Circular buffering
- c) Barrel shifter
- d) Super Harvard architecture

OR

Explain how a higher throughput is obtained using VLIW architecture. Give example.

Q.5 Draw and explain the schematic block diagram of TMS320C6X processor. (10)

OR

Explain memory architecture of TMS320C6X processor.

Q.6 What are the axioms of MRA? What are the properties of scaling function? (10)

OR

Explain any one application of DWT using sub-band composition in detail.

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