R09

Code No: D9303

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH II - SEMESTER EXAMINATIONS, APRIL/MAY 2012
SPEECH PROCESSING
(SYSTEMS AND SIGNAL PROCESSING)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1. Classify the speech sound units. Explain how the speech organs are shaped for speaking the respective speech unit.

2.a) List and explain about various time domain methods for Unvoiced speech detection.
b) Define short-term autocorrelation function. What are its applications?

3.a) Give a detailed note about digital model of speech signal.
b) Explain a parallel process approach for pitch period estimation.

4.a) What is the principle of LPC analysis?
b) Explain the Durbin's recursive solution for LPC analysis.

5.a) Explain about Homomorphic systems for convolution.
b) Explain how the Pitch is estimated using Homomorphic processing.

6.a) Explain a spectral subtraction approach for speech enhancement.
b) Distinguish between single microphone and multi microphone approaches.

7.a) Explain how the similarity of speech patterns is computed by DTW method.
b) Explain in abstract manner, the stages involved in HMM based speech recognition system.

8.a) Explain how the Viterbi algorithm is implemented.
b) Distinguish between speaker recognition system and speaker verification system.

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