R09

Code No: C7812

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I - SEMESTER EXAMINATIONS APRIL/MAY 2012
SPEECH PROCESSING
(COMPUTER NETWORKS & INFORMATION SECURITY)

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

Answer any five questions
All questions carry equal marks

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1.a) Define linear systems. Give an example.
b) Define filtering. Classify broadly. What kind of filtering is used in speech processing?
c) State the Fourier Transform relations. Explain the terms in it.

2. List the application domains for time domain processing and frequency domain processing in speech processing. Give a brief note about each.

3. Explain how the sound units in Indian languages are classified based on manner of articulation and based on place of articulation. Classify the sound units.

4.a) What is meant by short-time speech analysis? How is it justified in speech processing?
b) Distinguish between wide-band spectrogram and narrow-band spectrogram. What are the uses of each?

5.a) Define formants. Why they are important in speech processing?
b) What is the basic principle of LPC? Explain how LPC analysis is suitable for speech processing.

6.a) What is meant by cepstral analysis? How is it different from spectral analysis? What are its applications?
b) Explain what features are of important from the speech signal for speech recognition applications.

7.a) Explain how HMM is mathematically represented?
b) Briefly explain the procedure for training HMM.

8.a) Distinguish between speaker verification and speaker identification.
b) Give a brief note about prosodic features. What is role in speaker recognition?

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