

FACULTY OF ENGINEERING
B.E./4 (ECE) II-Semester (New) Main Examination, April, 2006

Subject: **SPEECH PROCESSING (Elective-III)**

Time: 3 Hours

Max.Marks: 75

N.B: Answer all questions of Part-A and
any Five questions from Part-B.

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PART - A (25 Marks)

1. Draw the source filter model (Phase).
2. What are Mel frequencies?
3. How is pitch extracted using correlation?
4. Briefly present the role of VQ in speech processing.
5. List the components of speech synthesis by rule phoneme synthesizer.
6. Give the block schematic for a typical text to speech synthesis system.
7. Present the principle of adaptive transform coder.
8. Explain the working of Cepstral decoder.
9. What do you understand by isolated word speech recognition?
10. Clearly distinguish between speaker identification and verification.

PART - B (5x10=50 Marks)

11. Explain the ADPCM technique in detail for speech signal processing.
12. Illustrate the format tracking of short time speech frames.
13. Draw the block diagram and explain SIFT algorithm.
14. Describe the principle of articulatory speech synthesis. Give the model parameters and show them for Mermelstein's model.
15. What is subband coding? Explain in detail with sub-band coder structure.
16. Describe the isolated word recognition system based on HMM modeling.
17. Write short notes on:
 - a) End point detection
 - b) Dynamic time warping.