FACULTY OF ENGINEERING

B.E. IV/IV Year (ECE) II Semester (Main) Examination, May/June, 2011

SPEECH PROCESSING

(Elective – III)

Time : 3 Hours]   [Max. Marks : 75

Answer **all** *questions from Part A.*
Answer any **five** *questions from part B.*

Part A – (Marks : 25)

1. What are the differences between Uniform quantisation and logarithmic quantisation?   3
2. Draw the block diagram of basic parallel format synthesiser.   3
3. What is Pulse and RELP Vocoders?   2
4. What are the different problems in automatic speech recognition?   2
5. What is Vector quantization?   3
6. What do you mean by Pitch extraction?   2
7. Define end point detection.   2
8. What are the properties of speech making the automatic speech recognition as challenging and difficult?   3
9. Draw the block diagram of differential PCM.   3
10. Define auto correlation function.   2

Part B – (Marks : 50)

11. (a) Explain logarithmic quantisation.   5
    (b) What is uniform quantisation?   5

12. (a) Explain the general discrete time model for speech production with a block diagram.   5
    (b) Explain pitch synchronous analysis.   5

13. (a) Explain short term energy function and vector quantisation.   5
    (b) Explain about zero crossing rate and format tracking.   5

14. (a) Draw the block diagram of text to speech conversion using speech synthesiser.   5
    (b) Explain linear predictive synthesiser.

15. (a) Explain the speech recognition with HMM model.   5
    (b) What is Pitch synchronous analysis?   5

16. (a) Explain how can we find the formats of a phoneme.   5
    (b) Explain channel vocoder.   5

17. Explain all about dynamic time – warping in detail.   10