Roll No.

Total No. of Questions: 08]

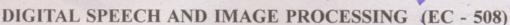
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MAY 2008

Paper ID [EC508]

(Please fill this Paper ID in OMR Sheet)

M.Tech. (Sem. - 1st)



Time: 03 Hours Maximum Marks: 100

Instruction to Candidates:

- 1) Attempt any Five questions.
- 2) All questions carry equal marks.
- Q1) Find the digital IIR filter for the second order low pass analog filter given by the following equation for T(s) for a sampling period T = 0.05s.

$$T(s) = \frac{15}{s(s+15)}$$

- Q2) Name the methods that are used to design the IIR filter. Explain the step invariant method.
- Q3) Explain the different approaches used for the automatic speech recognition by a machine.
- Q4) Explain how filter banks are used in speech processing by a machine?
- Q5) Explain the term dynamic time warping in context to speech processing.
- **Q6)** What are the different methods that are used for image enhancement? Explain edge enhancement method in detail.
- Q7) Name the different transforms that are used in the compression of an image. Explain the compression algorithm used to get jpeg file format.
- Q8) Write short notes on the following:
 - (a) Human speech production
 - (b) Karhunen Loeve compression predictive coding schemes

