Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.TECH. (COMPUTER SCIENCE & ENGINEERING - ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING) MAKEUP EXAMINATIONS - JUNE 2024

ELECTIVE-SPEECH PROCESSING [CSE 4023]

Marks: 50   **Duration: 180 mins.**

A

Answer all the questions.   Section Duration: 180 mins

Answer **ALL** questions.

1A)	List and explain the disciplines involved in developing a speech recognition system.	(3)
1B)	Explain the demerits of acoustic-phonetic approach to speech recognition.	(3)
1C)	Explain Artificial Intelligence approach to speech recognition.	(4)
2A)	Explain Bank of Filters method of Spectral Analysis.	(3)
2B)	List the spectral changes that do not change the phonetical relevance on a spectral signal. Also, list spectral changes that lead to change in phonetical relevance.	(3)
2C)	Expalin Cepstral Distance measure.	(4)
3A)	Explain Log Spectral distance measure.	(3)
3B)	With neat diagrams, show examples for Markov chain and Hidden Markov Model. List the differences between them.	(3)
3C)	Building background, explain Forward algorithm for computing likelihood of a Hidden Markov Model.	(4)
4A)	Explain the method used to compute only transition probability matrix while learning in a Hidden Markov Model.	(3)
4B)	Explain the need of subword speech units in a large vocabulary continuous speech recognition system.	(4)
4C)	List and explain the types of subword units in a large vocabulary continuous speech recognition system.	(3)
5A)	Explain the language models for large vocabulary speech recognition.	(3)
5B)	Explain the differences between Unit Selection Synthesis method with Diphone Waveform synthesis method. Also, explain Unit Selection Synthesis method in detail.	(4)
5C)	Explain Speech Synthesis system evaluation.	(3)

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