



MANIPAL ACADEMY OF HIGHER EDUCATION

Department of Computer Science & Engg.
Mid-term Exam
Answer ALL the questions.

ELECTIVE-SPEECH PROCESSING [CSE 4023]

Marks: 30

Duration: 120 mins.

MCQ

Answer all the questions.

Section Duration: 20 mins

Answer ALL the questions.

1) Which of the following is true?

[The information rate in a typical speech production system increases at each step and that of the speech recognition system decreases at each step](#)

[The information rate in a typical speech production system decreases at each step and that of the speech recognition system increases at each step](#)

[The information rate in a typical speech production step and speech recognition step remains the same](#)

[The information rate in a typical speech production step and speech recognition step cannot be compared](#)

(0.5)

2) The utterance of which of the following words has a diphthong in it?

[is](#) [car](#) [to](#) [buy](#)

(0.5)

3) An example of a nasal consonant is

[m](#) [z](#) [o](#) [p](#)

(0.5)

4) Which of the following is false?

[LPC uses frames](#) [LPC uses a series of filters](#) [LPC has spectral analysis](#) [LPC has parameter conversion](#)

(0.5)

5) Which of the following is not an acoustic parameter?

[formant](#) [energy in a spectral band](#) [duration](#) [distance measure](#)

(0.5)

6) TASI is used for

(0.5)

[increase the spectral frequency of each signal](#) [decrease the time for transmission of speech signals](#) [Optimize the utilization of multichannel communication media](#) [Reduce spectral interference](#)

7) Endpoint shifting will result in

[better speech recognition accuracy](#) [lesser speech recognition accuracy](#) [increase in computational time](#) [decrease in computational time](#)

(0.5)

8) Which of the following is not a property of distance measure?

[Positive definiteness](#) [Wavelength](#) [symmetry](#) [triangle inequality](#)

(0.5)

9) Spectral changes that change the perceived sound include

[changes in formant frequency](#) [highpass filtering](#) [lowpass filtering](#) [notch filtering](#)

(0.5)

10) Which of the following is not an unvoiced fricative?

[/f/](#) [/a/](#) [/s/](#) [/sh/](#)

(0.5)

Descriptive Type

Answer all the questions.

11) Explain the Speech production and Speech recognition system in humans.

(4)

12) Explain the Neural Networks-based approach to speech recognition.

(4)

13) Explain the acoustic-phonetic approach to speech recognition.

(3)

14) Compare and contrast the Bank of Filters method of spectral analysis with the Linear Predictive Coding method.

(3)

15) Explain the Linear Predictive Coding method of Spectral analysis.

(3)

16) Explain the factors that make reliable endpoint detection difficult.

(3)

17) Explain Cepstral Distance measure.

(3)

18) Explain Log Spectral Distance measure.

(2)