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Question: What is the primary function of feature extraction in speech processing?

- A) To increase the amount of information in a speech signal
- B) To reduce the amount of information in a speech signal while retaining the most important data
- C) To convert digital signals into analog signals
- D) To recognize spoken language

Correct Answer: B

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Question: What is the Nyquist-Shannon Theorem used for in signal processing?

- A) To determine the frequency of a sound wave
- B) To convert analog signals into digital signals
- C) To define the conditions under which an analog signal can be sampled and perfectly reconstructed
- D) To recognize spoken language

Correct Answer: C

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Question: What is the main difference between phonemes and allophones?

- A) Phonemes are written representations of sounds, while allophones are spoken sounds
- B) Phonemes are spoken sounds, while allophones are variations of phonemes
- C) Phonemes are used in one language, while allophones are used in another language
- D) Phonemes are discrete units of sound, while allophones are continuous units of sound

Correct Answer: B

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Question: What is the purpose of the source-filter model in speech production?

- A) To generate the acoustic energy of speech

- B) To modify the sound produced by the vocal cords
- C) To break down speech production into two main components: source and filter
- D) To recognize spoken language

Correct Answer: C

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Question: What is the function of quantization in analog-to-digital conversion?

- A) To convert digital signals into analog signals
- B) To reduce the amount of information in a speech signal
- C) To assign digital values to analog samples
- D) To determine the frequency of a sound wave

Correct Answer: C