1. Which method of text-to-speech synthesis involves piecing together pre-recorded segments of speech?
a) Concatenative synthesis
b) Waveform synthesis
c) Articulatory synthesis
d) Parametric synthesis
Answer: a) Concatenative synthesis
Explanation: Concatenative synthesis involves stitching together segments of pre-recorded speech to generate new utterances, offering high naturalness but requiring large storage for the speech database.

2. What is the primary advantage of waveform synthesis in text-to-speech systems?
a) Reduced computational complexity
b) Lower memory requirements
c) High flexibility in modifying speech characteristics
d) Minimal reliance on pre-recorded speech segments
Answer: d) Minimal reliance on pre-recorded speech segments
Explanation: Waveform synthesis generates speech directly from mathematical models, eliminating the need for storing large databases of pre-recorded speech.

3. Subword units in text-to-speech synthesis refer to:
a) Individual phonemes
b) Whole words
c) Syllables
d) Morphemes
Answer: c) Syllables
Explanation: Subword units, such as syllables, are used in TTS systems to enhance flexibility

in synthesizing speech, especially for languages with complex phonological structures.

4. What role does prosody play in text-to-speech synthesis?
a) Determining semantic meaning
b) Enhancing speech intelligibility
c) Adding emotional nuance
d) Improving computational efficiency
Answer: c) Adding emotional nuance
Explanation: Prosody involves the rhythm, intonation, and stress patterns of speech, contributing to the emotional expressiveness of synthesized speech.

5. Which of the following is a potential application of text-to-speech synthesis?
a) Medical diagnosis
b) Image processing
c) Language translation
d) Structural engineering
Answer: c) Language translation
Explanation: TTS can be utilized in language translation systems to convert text in one language into spoken words in another language.

6. Which synthesis method is known for its ability to produce highly customizable speech output?
a) Concatenative synthesis
b) Parametric synthesis
c) Articulatory synthesis
d) Formant synthesis
Answer: b) Parametric synthesis

Explanation: Parametric synthesis allows for detailed control over speech characteristics, enabling customization of speech output according to specific requirements.

7. What factor distinguishes intelligibility from naturalness in text-to-speech synthesis?
a) Clarity of speech
b) Emotional expressiveness
c) Degree of human-like sound
d) Adaptability to different accents
Answer: a) Clarity of speech
Explanation: Intelligibility refers to how easily speech can be understood, while naturalness pertains to how closely the synthesized speech resembles human speech in terms of sound and expression.

8. Which of the following is a challenge faced by waveform synthesis methods in text-to-speech synthesis?
a) Limited expressiveness
b) High computational complexity
c) Pronunciation variability
d) Inflexibility in modifying speech characteristics
Answer: b) High computational complexity
Explanation: Waveform synthesis methods often require significant computational resources, especially for real-time synthesis, which can be a challenge in resource-constrained environments.

9. How does the use of subword units contribute to improving the quality of synthesized speech?
a) By reducing the size of the speech database

b) By enabling better modeling of phonetic variations
c) By simplifying the speech synthesis process
d) By increasing the reliance on pre-recorded speech segments
Answer: b) By enabling better modeling of phonetic variations
Explanation: Subword units allow for more granular control over speech synthesis, facilitating better modeling of phonetic variations and enhancing the quality of synthesized speech.

10. What is the present status of text-to-speech synthesis in terms of naturalness and intelligibility?
a) Achieving human-level performance
b) Limited to basic applications
c) Still improving but not at human parity
d) No significant advancements in recent years
Answer: c) Still improving but not at human parity
Explanation: While text-to-speech synthesis has made significant advancements, particularly in recent years, achieving human-like naturalness and intelligibility remains an ongoing research challenge.