

MULTIPLE CHOICE

REAL-TIME IMAGING - PRACTICE SET - ANSWER KEY

PROPOSED FOR REVIEW - questions are the author's verbatim Q&A; distractors are auto-selected from other answers in the same bank and must be checked by a subject-matter reviewer (a distractor could coincidentally be correct). Not authoritative assessment content.

1. What are the units for temporal resolution?

- A. Millimeters
- B. Microseconds per centimeter
- C. Hertz or per second**
- D. Decibels

2. True or False? High line density improves spatial resolution.

- A. False
- B. True**

3. What does temporal resolution pertain to?

- A. Accuracy side by side
- B. Accuracy through slice thickness
- C. Accuracy in depth
- D. Accuracy in time**

4. What happens to frame rate with deeper imaging?

- A. It increases
- B. It decreases**
- C. It remains fixed
- D. It doubles because PRF increases

5. What determines temporal resolution?

- A. Frame rate**
- B. Output power
- C. Dynamic range
- D. Line density alone

6. What is the term used for the spacing between the sound beams?

- A. Sector size
- B. Line density**
- C. Dynamic aperture
- D. Frame rate

7. How are field of view and frame rate related?

- A. Inversely related**
- B. Unrelated
- C. Equal to each other
- D. Directly related

8. When you decrease the sector size or field of view, what happens to frame rate?

- A. It stays the same
- B. It becomes equal to imaging depth
- C. It decreases
- D. It increases**

9. What happens to frame rate with multi-focusing?

- A. It decreases**

- B. It becomes independent of focal zones
- C. It stays the same
- D. It increases

10. What two settings can determine frame rate?

- A. Frequency and propagation speed
- B. Output power and receiver gain
- C. Dynamic range and persistence
- D. Imaging depth and number of pulses in each picture**

11. What happens to temporal resolution when a system produces fewer frames per second?

- A. It is superior
- B. It is substandard**
- C. It is unchanged
- D. It improves spatial resolution automatically

12. What happens to temporal resolution with shallow imaging?

- A. It improves**
- B. It decreases because PRP becomes longer
- C. It degrades
- D. It becomes unrelated to frame rate

13. What is the process of an image being displayed one frame at a time called?

- A. Real-time scanning
- B. Static scanning**
- C. Dynamic aperture
- D. Persistence

14. True or False? High line density degrades the accuracy of an individual image.

- A. False**
- B. True

15. What happens to the number of pulses required to make an image when you increase the sector size or field of view?

- A. It increases**
- B. It becomes equal to line density
- C. It stays the same
- D. It decreases

16. Are frame rate and time for one frame reciprocals?

- A. Yes**
- B. No

17. How are frame rate and line density related?

- A. Inversely related**
- B. Unrelated
- C. Equal to each other
- D. Directly related

18. What three factors determine the number of pulses per frame?

- A. Frequency, wavelength, and propagation speed
- B. Attenuation, reflection, and refraction
- C. Output power, gain, and dynamic range
- D. Line density, sector size, and number of focal points**

19. When you increase the sector size or field of view, what happens to frame rate?

- A. It decreases**
- B. It becomes equal to pulse repetition frequency
- C. It stays the same
- D. It increases

20. How are pulses per frame and frame rate related?

- A. Equal to each other
- B. Inversely related**
- C. Directly related
- D. Unrelated

21. What happens to frame rate with shallow imaging?

- A. It remains fixed
- B. It decreases
- C. It increases**
- D. It becomes equal to pulse duration

22. Which imaging settings would be used to create a great movie of an organ in motion?

- A. Multiple foci, wide field of view, and high line density
- B. Single focus, narrow field of view, and low line density**
- C. High line density, wide field of view, and multiple focal zones
- D. High output power, high receiver gain, and wide dynamic range

23. Does lateral resolution improve with multi-focusing?

- A. No
- B. Yes**

24. How are imaging depth and frame rate related?

- A. Equal to each other
- B. Unrelated
- C. Inversely related**
- D. Directly related

25. What are the units of frame rate?

- A. Hertz or per second**
- B. Decibels
- C. Microseconds
- D. Meters per second