

MULTIPLE CHOICE

2D IMAGING - PRACTICE SET

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. Does a linear phased array have moving parts?

- A. No
- B. Yes

2. What type of focusing with a mechanical transducer uses a curved active element?

- A. External focusing
- B. Phased array focusing
- C. Dynamic receive focusing
- D. Internal focusing

3. What type of transducer consists of multiple ring-shaped elements with a common center?

- A. Convex array
- B. Mechanical transducer
- C. Linear phased array
- D. Annular phased array

4. What are the types of fixed focusing in a mechanical transducer?

- A. Transmit and receive focusing
- B. Internal and external focusing
- C. Dynamic and phased focusing
- D. Axial and lateral focusing

5. What is the shape of an active element within an annular phased array transducer?

- A. Disc-like
- B. Curved rectangular strip
- C. Needle-shaped
- D. Rectangular strip

6. What is achieved by varying electrical delays in the returning signals from the active elements?

- A. External fixed focusing
- B. Dynamic receive focusing
- C. Static scanning
- D. Transmit apodization

7. True or False? In a phased array system, the pattern with the least curvature creates a beam with the deepest focus.

- A. False
- B. True

8. Can the sonographer control the dynamic receive focusing?

- A. No. It is performed automatically
- B. Yes

9. What occurs when one element of a linear sequential array is damaged?

- A. Only a horizontal band of dropout occurs
- B. The entire image is lost
- C. Only a portion of the image below the damaged element is affected
- D. Erratic steering affects every scan line

10. What does the term phased array mean?

- A. Mechanical only
- B. Fixed single focus
- C. Single active element
- D. Multi-focus or adjustable

11. With a convex array, if one active element is damaged, what happens to the image?

- A. Only a horizontal band of dropout occurs
- B. The entire image is always lost
- C. Erratic steering affects every line equally
- D. Only a portion of the image will drop out directly under the damaged element

12. How are the active elements in a linear array transducer lined up?

- A. In a curved line
- B. In a straight line
- C. In concentric rings
- D. In a single circular disc

13. What is the focal depth of a mechanical transducer?

- A. Fixed focal depth
- B. No focal depth
- C. Dynamic focal depth
- D. Multiple electronic foci only

14. What type of transducer creates grating lobes?

- A. Single-element mechanical transducers
- B. Array transducers
- C. Continuous wave display modes
- D. A-mode displays

15. True or False? To optimize lateral resolution, the sound beam must be wide.

- A. False
- B. True

16. What is slice thickness resolution also called?

- A. Elevational resolution
- B. Temporal resolution
- C. Lateral resolution
- D. Axial resolution

17. True or False? In a phased array system, the pattern with the greatest curvature creates a beam with the shallowest focus.

- A. True
- B. False

18. What type of transducer has 120 to 250 rectangular-shaped strips of PZT arranged side by side in a straight line?

- A. Linear sequential array
- B. Convex array
- C. Mechanical transducer
- D. Annular phased array

19. True or False? Sound travels only in a straight line.

- A. False
- B. True

20. What is an array transducer that has a bowed or curved shape called?

- A. Linear sequential transducer
- B. Convex, curved, or curvilinear transducer
- C. Annular phased array transducer
- D. Mechanical transducer

21. What are additional areas of sound energy that extend outside of the main beam called?

- A. Side lobes
- B. Matching layers
- C. Focal zones
- D. Main lobes

22. What can be used to make a sound beam narrow over a great range of depth while maintaining image quality?

- A. High receiver gain only
- B. Dynamic aperture
- C. Fixed aperture
- D. Reverberation

23. How are elements in an annular array transducer arranged?

- A. Side by side along a curved line
- B. Side by side in a straight line
- C. As circular rings with a common center
- D. As one movable disc

24. What image shape does a linear sequential array produce?

- A. Sector or fan-shaped image
- B. Rectangular image
- C. Blunted sector image
- D. Trapezoidal image

25. What type of focusing is used with a vector array?

- A. External lens focusing only
- B. Electronic focusing
- C. No focusing
- D. Mechanical focusing only