

MULTIPLE CHOICE

2D 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. 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