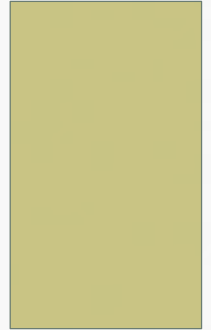


RED TECH OFFICIAL FOR RADIOGRAPHER

***50 MCQS: IMAGE ARTIFACTS
IN RADIOGRAPHY***



1. Which artifact results from patient motion during exposure?

- A. Grid cutoff
- B. Ghosting
- C. Blurring
- D. Aliasing

Correct answer: C. Blurring



2. A repeating black line in a DR image is most likely caused by:

- A. Exposure fluctuation
- B. Dead pixel rows
- C. Tube arcing
- D. Patient movement



Correct answer: : B. Dead pixel rows

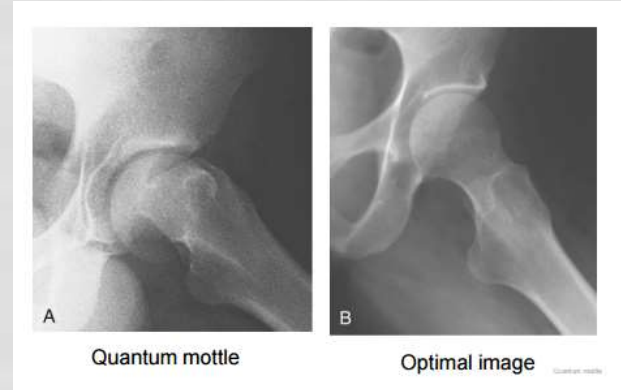
3. Quantum mottle is best described as:

A. High contrast shadow

B. Low exposure noise

C. Motion blur

D. Processing error



Correct answer: B. Low exposure noise

4. An artifact from a bucky grid misalignment appears as:

- A. Moiré pattern
- B. Ring artifact
- C. Blooming
- D. Fog



Correct answer: A. Moiré pattern

5. Which artifact occurs due to improper erasure of CR plates?

- A. Banding
- B. Ghost image
- C. Moiré pattern
- D. Blooming

Correct answer: B. Ghost image

6. Static marks on film-screen images are caused by:

A. Moisture

B. Dust in cassette

C. Static electricity discharge

D. Fogging



Correct answer: C. Static electricity discharge

7. In digital systems, “banding” is associated with:

- A. Aliasing
- B. Calibration error
- C. Grid lines
- D. System delay

Correct answer: B. Calibration error

8. Which of the following will most likely cause a double exposure artifact in film-screen radiography?

- A. Grid misalignment
- B. Motion during exposure
- C. Plate not erased
- D. Reusing cassette without reloading

Correct answer: D. Reusing cassette without reloading

9. Light leak artifact in CR is due to:

- A. Laser misalignment
- B. Overexposure
- C. Damaged cassette
- D. Improper erasure

Correct answer: C. Damaged cassette

10. Which artifact may mimic pathology on chest radiographs?

- A. Motion blur
- B. Improper SID
- C. Jewelry artifact
- D. Saturation



Correct answer: C. Jewelry artifact

11. What causes ghosting in CR systems?
- A. Bucky failure
 - B. Incomplete erasure of imaging plate
 - C. High-frequency grid
 - D. Excessive dose

Correct answer: B. Incomplete erasure of imaging plate

12. A white line artifact in CR is most likely caused by:

- A. Laser malfunction
- B. Dirt on light guide
- C. Improper patient positioning
- D. Scatter radiation

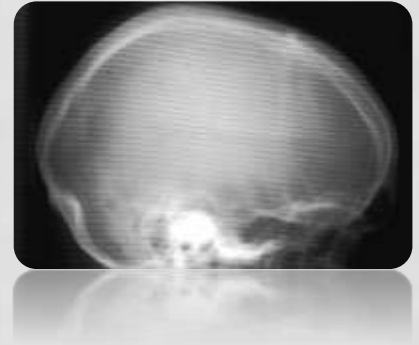
Correct answer: B. Dirt on light guide

13. Flat panel detector drop-out appears as:
- A. Bright band
 - B. Black smudge
 - C. Dead pixel region
 - D. Ghost image

Correct answer: C. Dead pixel region

14. The effect of “aliasing” in DR images is caused by:

- A. Low-resolution detectors
- B. High spatial frequency sampling
- C. Incomplete calibration
- D. Mismatch of grid and scan lines



Correct answer: D. Mismatch of grid and scan lines

15. Which artifact is unique to DR systems and not seen in CR?

- A. Ghosting
- B. Dead pixels
- C. Moiré pattern
- D. Grid cutoff

Correct answer: B. Dead pixels

16. CR cassette exposure to room light can result in:

- A. Ghost image
- B. Image fading
- C. Light leak artifact
- D. Dark band artifact

Correct answer: C. Light leak artifact

17. The artifact known as “blooming” in DR is due to:

- A. Overexposure
- B. Detector saturation
- C. Dead pixels
- D. Scatter radiation

Correct answer: B. Detector saturation

18. A CR cassette showing previous patient image suggests:

- A. Delayed readout
- B. Improper cassette loading
- C. Ghosting
- D. Motion blur

Correct answer: C. Ghosting



19. Vertical lines on CR images usually suggest:

A. Scanner malfunction

B. Digital aliasing

C. Motion

D. Exposure error



Correct answer: A. Scanner malfunction

20. What is the corrective action for ghosting in CR systems?

- A. Clean light guide
- B. Increase kVp
- C. Proper plate erasure
- D. Change SID

Correct answer: C. Proper plate erasure

21. Which artifact in DR systems resembles grid lines even when no grid is used?

- A. Moiré pattern
- B. Drop-out artifact
- C. Dead rows
- D. Electronic noise

Correct answer: A. Moiré pattern

22. What results in fog artifact in CR?

A. Underexposure

B. Low kVp

C. Ambient light leakage

D. Grid misalignment

Correct answer: C. Ambient light leakage

23. The term “drop-out” in DR refers to:

- A. Exposure failure
- B. Detector failure
- C. Backscatter
- D. Collimator error

Correct answer: B. Detector failure

24. A banding artifact in DR fluoroscopy is related to:

- A. Tube failure
- B. Image lag
- C. Pulsed fluoro mode
- D. Frame drop

Correct answer: C. Pulsed fluoro mode

25. Line pair resolution testing helps detect:

A. Dead pixels

B. Moiré

C. Spatial distortion

D. Artifact severity

Correct answer: D. Artifact severity

26. Which artifact in CT appears as a streak between dense structures?

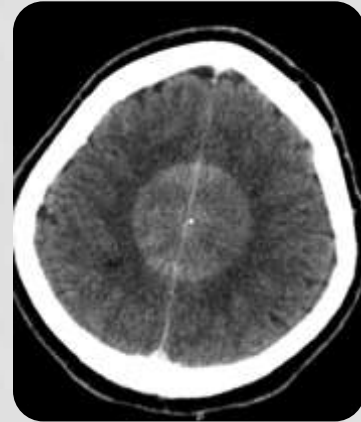
- A. Ring artifact
- B. Beam hardening
- C. Windmill artifact
- D. Partial volume



Correct answer: B. Beam hardening

27. Ring artifacts in CT are typically due to:

- A. Calibration error
- B. Detector malfunction
- C. Patient motion
- D. Incomplete reconstruction



Correct answer: B. Detector malfunction

28. Streak artifacts from metal implants in CT are reduced by:

- A. Decreasing mAs
- B. Using bone algorithm
- C. Metal artifact reduction algorithm
- D. Using low pitch

Correct answer: C. Metal artifact reduction algorithm

29. What CT artifact results from partial scanning of structures with high contrast edges?

- A. Cupping
- B. Windmill
- C. Partial volume
- D. Beam hardening

Correct answer: C. Partial volume

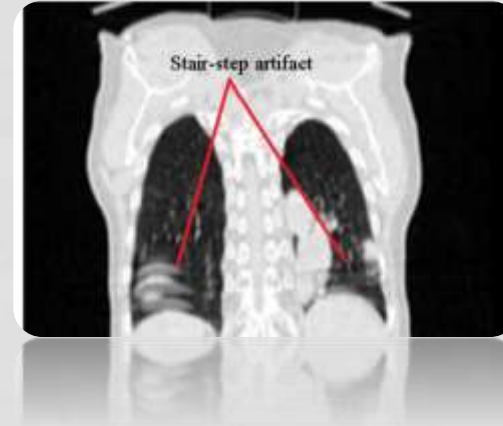
30. CT artifact resembling concentric rings is due to:

- A. Scatter
- B. Detector offset
- C. Collimation error
- D. Gantry instability

Correct answer: B. Detector offset

31. Stair-step artifacts in CT appear due to:

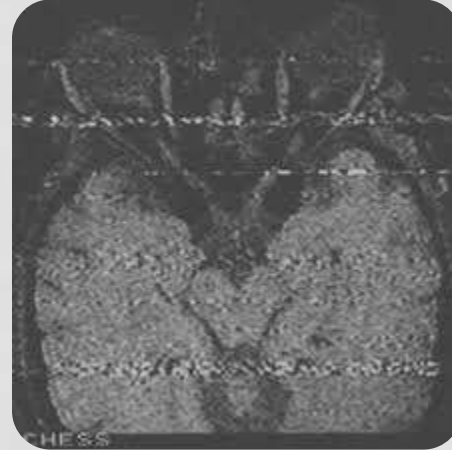
- A. Wide collimation
- B. Table increment error
- C. Motion
- D. High kVp



Correct answer: A. Wide collimation

32. Zipper artifact in MRI has equivalent cause in CT as:

- A. Motion
- B. Metal presence
- C. RF interference
- D. Partial scan

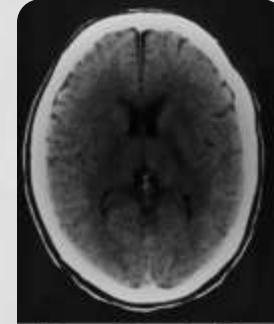


Correct answer: B. Metal presence

33. In CT, cupping artifacts occur due to:

- A. Tube rotation lag
- B. Beam hardening
- C. Slow pitch
- D. Contrast media

Correct answer: B. Beam hardening



**Beam hardening
with cupping**



Normal CT scan

34. Windmill artifact in helical CT is caused by:

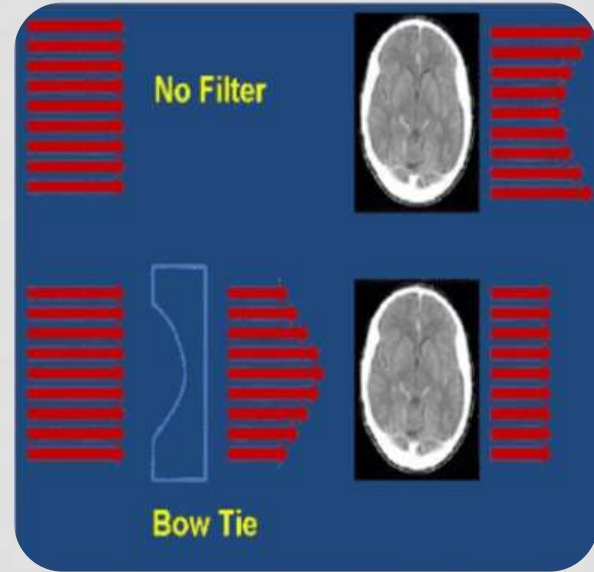
- A. High pitch
- B. Slow rotation
- C. Filter miscalibration
- D. Dense tissue



Correct answer: A. High pitch

35. What is used to reduce beam hardening artifacts in CT?

- A. Bowtie filter
- B. Soft algorithm
- C. Increased SID
- D. Bone window



Correct answer: A. Bowtie filter

36. Streak artifact in CT between spine and pelvis is usually due to:

- A. Table motion
- B. Partial volume averaging
- C. Beam hardening
- D. Detector misalignment

Correct answer: C. Beam hardening

37. Which is not a typical MRI artifact but can affect CT images?

- A. Wrap-around
- B. Metal streak
- C. Ring artifact
- D. Star artifact

Correct answer: A. Wrap-around

38. What increases partial volume artifact?

A. Thin slice thickness

B. Wide detector

C. High pitch

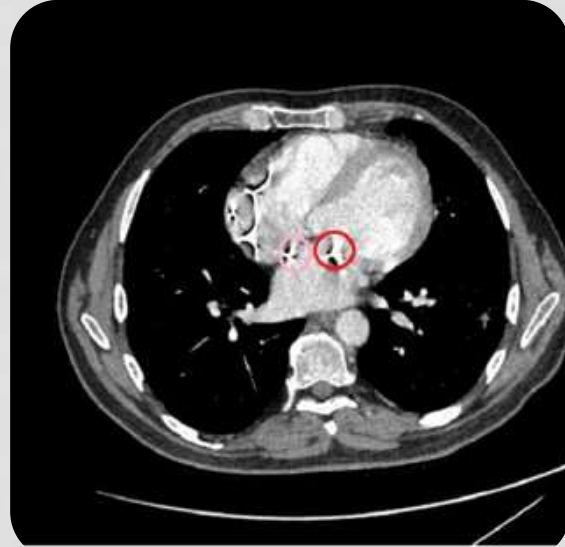
D. Low kVp

Correct answer: B. Wide detector

39. Pixel blooming can occur in:

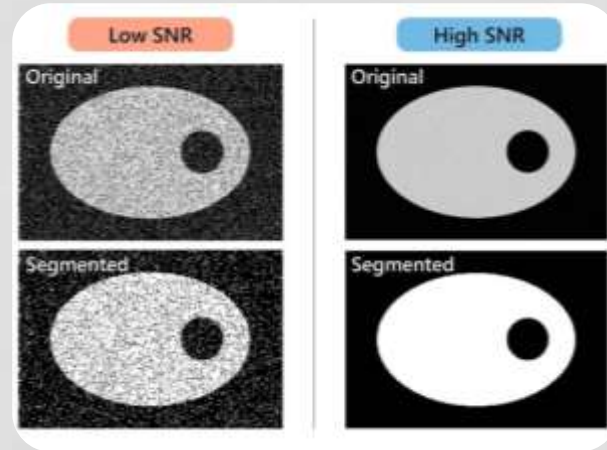
- A. CR
- B. DR
- C. CT
- D. MRI

Correct answer: C. CT



40. CT noise artifacts resemble:

- A. Low contrast
- B. Granular texture
- C. Ghosting
- D. Halation



Correct answer: B. Granular texture

41. An artifact resembling a spine overlaying a lung in chest X-ray is likely due to:

- A. Improper centering
- B. Reversed cassette
- C. Double exposure
- D. Motion blur

Correct answer: C. Double exposure

42. Dark streaks on CR image edges could be due to:

- A. Backscatter
- B. Over-collimation
- C. Exposure creep
- D. Digital dropout

Correct answer: A. Backscatter

43. Which is **not** a cause of fogging in film-screen radiography?

- A. Light leak
- B. Chemical contamination
- C. Static discharge
- D. Overexposure

Correct answer: C. Static discharge

44. Artifact caused by pressure during handling of film:

- A. Pressure mark
- B. Crescent mark
- C. Roller mark
- D. Scratches

Correct answer: B. Crescent mark

45. Scratch marks on film are most likely due to:

- A. Dirty processor rollers
- B. Damaged intensifying screen
- C. Old developer
- D. Low humidity

Correct answer: A. Dirty processor rollers

46. The best method to minimize motion artifacts in radiography is:

- A. Low mAs
- B. Short exposure time
- C. Low kVp
- D. Use of filter

Correct answer: B. Short exposure time

47. The use of a moving grid helps prevent:

A. Moiré artifact

B. Motion artifact

C. Exposure creep

D. Ghosting

Correct answer: A. Moiré artifact

48. Which action reduces aliasing in digital systems?

- A. High-frequency grid
- B. Lower sampling rate
- C. Longer SID
- D. Less collimation

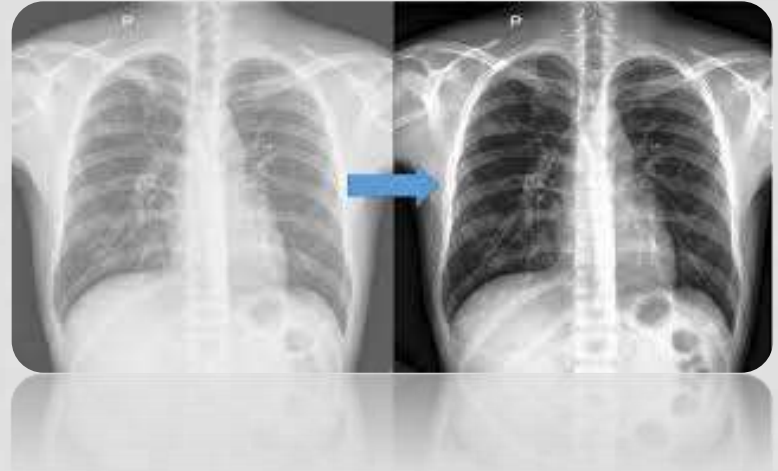
Correct answer: A. High-frequency grid

49. Artifact from off-center positioning in CR:
- A. Misregistration
 - B. Image lag
 - C. Asymmetric exposure
 - D. Halo

Correct answer: C. Asymmetric exposure

50. Improper histogram analysis in CR can result in:

- A. Exposure creep
- B. Ghost image
- C. Saturated pixels
- D. Histogram error artifact



Correct answer: D. Histogram error artifact