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QUESTION NO # 1

Describe ten advantages of digital radiography over screen film radiography?

ANSWER # 1

ADVANTAGES :

- In digital radiography (DR) the image density is automatically adjusted by the image processing, no matter of the applied dose.
- This is one of the key advantage of DR which helps to signigicantly reduce the retake rate, but at the same time may hide occasional or systematic under or over exposure.
- Under exposure are easily corrected by radiograph but may result in noisy images.
- Over exposure cannot be deleted unless patient dose measurement are monitored.
- No chemical processing.
- Low patient dose.
- No dark room.
- No repeat examination.
- Reusable imaging plate.
- Low exposure techniques.

QUESTION No # 2

Differentiate between direct digital radiography and indirect digital radiography.

ANSWER No # 2

Direct digital radiography :

- Direct digital refers to sensors that send a digital image directly to a computer and is also knows as DR or digital radiography.
- It directly coverts the absorbed x-ray into a proportionally sized electrical charge with no intermediate scintillating step.
- Storage capacitor.
- Charge.

Indirect digital radiography :

- Indirect digital uses reusable phospher coated plates that are run through a scanner to obtain the digital image which is then sent to the computer.
- It uses a scintillator to convert x-rays to light before conversion to an electrical charge for subsequent readout.
- Stored electrons.
- Light photons.

QUESTION No # 3

Why is fill factor important?

Fill factor :

Fill factor is the percentage of the pixels that is unable to be affected by the incoming x-ray beam.

Importance of fill factor :

- The smaller the pixel size, the less the fill factor.
- Lower fill factor requires increased patient dose, so its tradeoff.
- The percentage of the pixel face that is sensitive to x-rays is the fill factor, the fill factor is approximately 80%, therefore 20% of the x-rays beam does not contribute to the image.
- Fill factor is the percentage of the pixel in a digital radiographic image receptor that is sensitive to the incoming x-rays beam and allow conversion of the incident X-ray beam into light.

QUESTION No # 4

What are the consequences of producing flat panal digital image receptors with smaller pixels?

ANSWER No # 4

- The consequences of producing flat panal digital image receptors with small pixels are noisy images.

QUESTION No # 5

Discuss the relevant features of a storage phospher imaging plate?

ANSWER No # 5

Storage phosphor principle:

- The imaging plate is coated with photostimulable phospher, also called storage phospher.
- The phospher material is generally a kind of Bariumfluorohalide.
- The imaging plate contains not only the phospher layer, but also a protective coat, a conductive layer, support and laminate layers.
- A latent image is created in the form of "stored energy".
- The imaging plate looks like the intensifying screens found in conventional film-screen cassattes.

THE END