**BS. Radiology 4th Semester**

**Course Title: Computed radiography and digital radiography**

**Max Marks: 30**

**ID : 15112**

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**Q1: Describe ten advantages of digital radiography over screen-film radiography?**

**Answer: ADVANTAGES OF CR :**

1. No repeat examination .
2. Low exposure technique .
3. Low patient dose .
4. Kvp and mAs
5. Improved spatial resolution and contrast resolution .
6. No loading and non non-loading of cassette .
7. Reusable imaging plate .
8. No darkroom .
9. Ability to rapidly change back and forth from dark on light imaging to light on dark imaging .
10. DR allows the option to rotate image immediately .

**QNO2 : Differentiate between direct digital radiograph and indirect digital radiograph ?**

**ANSWER : DIRECT DIGITAL RADIOGRAPHY :**

* In DR use a photoconductor material (amorphous selenium )applied on the top of thin film transistor .
* DR converts the x-ray directly into electrical charge .
* Capture element : amorphous selenium
* Coupling element : no
* Collecting element : TFT

**INDIRECT DIGITAL RADIOGRAPHY :**

* In indirect DR uses an x-ray intensifying screen that convert x-ray to light which is then dected by the flat panel detector .
* Indirect DR convert the x-ray to light then light to a electrical charge .
* Capture elements : CSI , Gdos
* Coupling element : fiber optics , contact layer .
* Collecting element : TFT , CSD .

**QNO3 :why is fill factor factor important ?**

**ANSWER: FILL FACTOR :**

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

* 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-ray is the fill factor . the fill factor is approximately 80% ,therefore 20% of the x-ray 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-ray beam and allows conversion of the incident x-ray beam into light .

**QNO4: Discuss the relevant features of a storage phosphor imaging plate ?**

**ANSWER: STORAGE PHOSPHOR PRINCIPLE :**

* The image plate is coated with photostimulable phosphor , also called storage phosphor .
* The phosphor material is a kind of Bariumflurohalide .
* The image plate contains not only the phosphor layer , but also a protective coat , a conductive layer , support and laminate layers .

**QNO5:what are the consquences of producing flat panel digital image receptors with smaller pixels ?**

**ANSWER :** The conseqences of producing flat panel digital image receptor with small pixels are noisy images .