***IQra National University Peshawar***

***Hayat Abad phase 2.***



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**Paper Computed and Digital Radiography.**

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**Module 4th semester**

**Exam Mid term**

**Q.1:-Describe ten advantages of digital radiography over screen-film radiography**

**ANS:-**

 **Advantages of digital radiography:-**

1. Not required dark room for chemical process.
2. Digital radiograph is easily copied.
3. Digital radiography allows more exposure for a higher contrast image.

While screen film have limited dynamic range.

1. Digital radiography have shorter exposure time then screen film radiography.
2. On the computer digital radiography can be zoom.
3. No need for costal storage space.
4. No need to remove coatings or insulting when yeasting a component.
5. Digital image do not deteriorate over time.
6. Digital image do not required temperature control.
7. No pipe preparation required when testing component.

**Q.2:-Differentiate between direct digital radiography and indirect digital radiography.**

**ANS:-**

**Direct Digital Radiography:-**

 **DDR** is the process of direct digital registration of image on detector. Whit out no intermediate processing steps to be obtained a signal as in computer.

* In DDR X-Ray is converted into electron signals.
* It has CCD which is connected with computer and image is visible within seconds
* Amorphous selenium is the capturing element of DDR.

**Indirect digital radiography:-**

 IDR is the process in which use a scintillator to convert X-Ray to light before conversion to an electrical charge for subsequent readout.

* Use reusable phosphor coted plates.
* That are run through a scanner to obtain a digital image which is show on computer.

**Q.3:- Why is fill factor important?**

**ANS:-**

 **Fill Factor:-**

 The fill factor is the percentage **%** of pixel area which is sensitive to the image signals which is electron or light photon.

It can never be 100% given the need to accommodate conductor.

 **Importance of fill factor:-**

* Fill factor convert X-Ray beam to light.
* 20% of X-Ray beam dose not contribute to the image therefore fill factor is approximately 80%.

**Q.4:- What are the consequences of producing ﬂat panel digital image receptors with smaller pixels?**

**ANS:-**

 A consequences of flat panel image receptor with smaller pixels is (Noisy image).

 **Explanation:-**

* Fluctuation in the optical density may cause Noise of image.
* And flu tuition is caused due to low radiation dose.
* So the consequence of producing flat panel image receptor with small pixel is resulting Noise of image.
* The consequence of producing flat panel digital image receptor resulting “that noise of image will be increase”.

**Q.5:- Discuss the relevant features of a storage phosphor imaging plate.**

**ANS:-**

 **Features of storage phosphor imaging plates:-**

1. Use for digital imaging.
2. Absorb X-Ray energy and stored in crystal defect.
3. The energy is set free as blue photon.
4. IN the history of CR several storage phosphor is families were investigate.
5. The current commercial storage phosphor BaFBr: Eu2and

 CsBr: Eu2+is discussed.

1. In the CR image plate has a very significant impact on its performance.
2. The relation b/w storage phosphor plate physical characteristics and image quality is expressed.

**(THE END OF PAPER)**