

# **Mid Term Exam**

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**Paper :CR and DR**

**Program:Bs Radiology 4<sup>th</sup> semester**

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## **Question no:1**

**Answer:**

### **➤ Advantages of Digital Radiography:**

- I. They have been better quality image from the traditional film x ray.**
- II. They are easily stored in computer.**
- III. They are take less time to take Radiograph.**
- IV. Use 70%less radiation than traditional film x ray.**
- V. Increase dynamic changes.**
- VI. Linear response of image.**
- VII. Take the waiting out of the development process allowing us to see what is going on immediately.**
- VIII. Availability of post processing functions.**
- IX. They are less expensive and more environmentally.**

**X. Can be easily transferred to other orthodontist when referrals are needed.**

**Question no:2**

**Answer:**

➤ **Direct Digital Radiography:**

- **In direct Digital Radiography the x ray are converted into electric signal are called direct DR. Because no scintillation phosphor are involved.**
- **The capture element of direct DR is amorphous selenium.**
- **The coupling also amorphous selenium having good spatial resolution.**

➤ **Indirect Digital Radiography:**

- **Two types of modalities are present the basis of collecting device used.**
- **(Collecting device) and (charge sensitive device).**

- **Cesium iodide is a charge couple device for the Indirect DR.**
- **X ray in indirect are first converted into light and then into electric signal.**
- **The collecting elements is CCD/CMOS for the Indirect DR.**
- **They are having good spatial resolution.**

**Question no :3**

**Answer:**

➤ **FILL FACTOR:**

**Definition::The percentage of the pixel face which are sensitive to x ray is called fill factor.**

- **The fill factor allows the conversion of the incident x ray beam into light, the fill factor is nearly 80% there fore about 20%of the x ray is not taking image where the fill factor is not present.**
- **With having the small pixel the fill factor ate also reduced and the ray intensity must be increased to maintain the adequate signal strength material science research promises increase fill factor at even lower patient radiation dose.**

**Question no:4**

**Answer:**

**The consequences of producing flat panel digital image receptor with small pixel are noisy image.**

**Noisy image is the fluctuations in the optical density of the Radiograph and this fluctuations may be caused due to low radiation dose now from here wo knows that the consequences of producing flat panel digital image receptor with small pixel.**

**The consequences of the producing flat panel digital image receptor that the resulting image will have an increased amount of noise.**

## **Question no:5**

### **Answer :**

- **Computed Radiography uses storage phosphor imaging plates for digital imaging, absorbed the x ray energy is stored in the crystal defect.**
- **In read out the energy set free as have photons upon the optical stimulation.**
- **In about the 33 years history of CR several storage phosphor families were investigate and developed.**
- **The photostimulations luminescence mechanism of the current storage phosphor BaFBr,  $\text{Eu}^{2+}$  and CsBr,  $\text{Eu}^{2+}$  is discussed. It is demonstrated that the**

**morphology of the phosphor crystal in the CR imaging plate has a very significant impact on the performance.**