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SUBJECT

G- RADIOLOGY

SEMESTER

3rd

SAMMAR

MID TERM.

DNO : 01

⊕ Differential between
Calcium Tungstate Screen
and rare Earth Screen

	Calcium Tungstate	RARE EARTH
(1)	Speed = 50-800	Speed = 20-1500
(2)	CE, x-ray absorption 5%	CE 20%
(3)	Sensitive = violet, blue	Sensitive = green
(4)	low absorption of defective quantum efficiency	Highly absorption of DQE
(5)	Mag factor = 20-200	Mag factor 40 to 400
(6)	Low Image Noise	High Image Noise
(7)	Spectral Resolution 15 lp/mm	Spectral Resolution 7 lp/mm

(2)

(8) cooler emission of Violet-Blue → Cooler emission Green Blue

(9) Safe light ambient light → Safe light red filter

to low KVP → high KVP.

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Q

Q NO: 02
Explain The Latent Image formation?

ANS

Latent Image formation:

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The latent image is invisible image produced by the exposure to light of ~~photography~~ photosensitive material such as photographic film

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When photographic film is developed, the area that was exposed darkens and form a visible image.

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The Nature of early invisible ~~days~~ change in silver halid crystal of the film emulsion coating was unknown

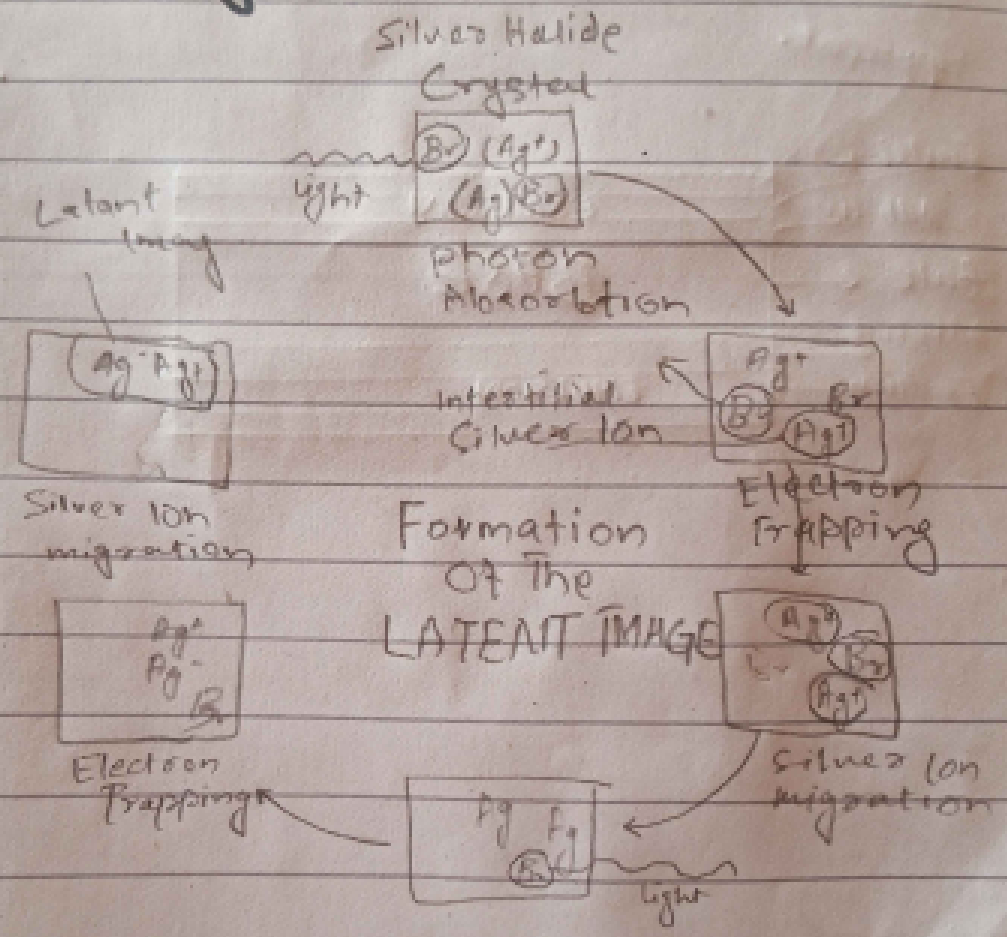
So the image was said to be "latent"

(9)

→ The Image forming x-rays exiting the patient and incident on the Radiographic Intensifying Screen film deposit Visible Light energy in the emulsion primarily interaction by with atom of Silver halid crystal. This energy is deposit in a pattern that representative of anatomical part that is being unradiographed. Immediately after exposure No image can be observed on the film.

→ An invisible Image is present however and is called "Latent Image".

→ Diagram



(6)

QNO: 03

ANS CONSTRUCTION
OF RADIOGRAPHIC
FILM

→ The manufacture of radiographic film is a precise procedure that requires tightly quality control.

During the early 1960s the height of nuclear weapon testing, x-ray film manufacturers took extraordinary precautions to ensure the contamination of radioactive fallout did not invade their manufacturing environment. Such contamination could seriously fog the film.

⇒ PART OF FILM.

W BASE:

- Initially X-RAY were taken on glass plate.
- In 1918s Cellulos nitrate bases film replaced. glass but discard because of highly inflammable.
- In 1920 cellulose ~~try~~ triacetate or safety base introduced.
- Polyester base replaced cellulose triacetate in 1960's
- Now a day triacetate are used.

Characters of Good Base.

- Structural Support for fragile emulsion
- Low light absorption
- Flexible thick & Strong

- dimensional Stability
 - In processing
 - For archival

- Varying humidity
- NON flammable.

→ **Function of BASE**

- provide support for emulsion layer
- To transit light.

→ **ADHESIVE LAYER.**

- also called Substrum layer
- Mad of mixture of gelatin solution and solvent of film base.
- It keep emulsion layer and base adhere to each other during coating stage and processing.
- When dye is added it contact cross over effect.
- provide uniform surface.

EMULSION LAYER

- Emulsion is the heart of Radiographic film.
- The X-RAY or light from I.S. interact with the emulsion and transfer information to the film.
- It consist of a very homogenous mixture of gelatin and silver crystal
- In typical emulsion 90 to 99% is AgBr and about 1 to 10 Ag
- Silver halid in emulsion is in the form of small crystals.
- Silver halid is may be tubular globular polyhydral or irregular in shape

10.

Diagram

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Double Emulsion Film.

