

Branch: - Bio-med Date: -10/12/12

AGJ-2nd half (i)-12-4

Con. 8207-12.

Subject: - medical imaging - I

Sem: - VI (REV)

KR-9110

(3 Hours)

[Total Marks : 100

N.B. : (1) Question No. 1 is compulsory.

(2) Attempt any four questions out of remaining six questions.

(3) Assume suitable data.



1. (a) Explain process of X-ray generation. 10
(b) Using 100 KVP what is minimum wavelength photon can be produced. 5
(c) In stationary anode X-ray tube. Calculate the size of apparent focal spot size when actual focal spot size is 1.5 mm Anode Angle is 16.5° . 5
2. (a) Explain DR system. 10
(b) List and explain grid performance parameters. 10
3. (a) List and explain the properties of ultrasound. 10
(b) What is curie temperature ? Explain the vibration modes of ultra sound crystal. 10
4. (a) Explain with block diagram DSA system. 5
(b) Explain quarter wave matching. 5
(c) What is impedance required for matching layer between PZT ($z = 3.0 \times 10^7 \text{ kg/m}^2\text{s}$) and water ($z = 1.5 \times 10^6 \text{ kg/m}^2\text{s}$). 10
5. (a) Explain the different parts of Thermography machine. 10
(b) Explain with neat diagram filament ckt. and high voltage X-ray ckt. 10
6. (a) Explain different types of endoscopes. 10
(b) Explain Mammography machine. 10
7. Write short notes on (any three) :- 20
 - (a) X-ray film
 - (b) Heat effect
 - (c) X-ray generator
 - (d) B-mode.