AGJ 2nd half (e+) 25

MI-1 Dec 11

Con. 6558-11. (REVISED COURSE) MP–3598

(3 Hours) Total Marks : 100

(Sem - VI) Dec 20
sub - (Medical Imaging (Biomedical) 15/12/11

N.B. : (1) Question No. 1 is **compulsory.**
(2) Attempt any **four** questions out of remaining **six** questions.
(3) Assume **suitable** data.
(4) Assumption should be clearly **stated.**
(5) Use legible handwriting. Use blue/black ink.

Q1: (a) Explain the following terms with reference to X-rays: (20)

(i) Saturation voltage
(ii) Heel effect
(iii) Line focus principle
(iv) Photoelectric Effect
(v) Characteristic Radiation

Q2:
a) Explain x-ray image intensifier in detail. (10)
b) Explain the angiography techniques. (10)

Q3:
a) Explain the various parts of the Digital Radiography system with the help of a block diagram. (10)

b) List the various types of real time ultrasound scanners. Also, explain steering and focusing. (10)

Q4:
a) Explain Continuous and Pulsed wave Doppler ultrasound systems. (10)
b) Explain briefly the Digital Mammography system (10)

Q5:
a) Explain the different parts of a thermographic machine with the help of a block diagram. (10)

b. Calculate the shortest wavelength produced by X-Ray tube when potential difference across the tube is 130 KVP ($h = 6{\cdot}6 \times 10^{-34}$ J/s, $C = 3 \times 10^{8}$ m/sec, $e = 1{\cdot}6 \times 10^{-19}$ C). **10**

Q6:
a) What do you understand by A, B and M modes in Ultrasonographic imaging? (10)
b) Draw and explain the complete block diagram of X-ray m/c. (10)

Q7: (20)

Write short notes on any **four:**
i) Use of Grids in X-ray imaging
ii) Applications of Endoscopy
iii) X-ray film processing
iv) Radiation protection measures
v) Quarter-wave matching