April-2001

[KD 143] **Sub. Code : 2040**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VIII — Radio Diagnosis

Part II — Preliminary

MEDICAL RADIATION PHYSICS AS APPLIED TO RADIO DIAGNOSIS

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

1. (a) What is the principle of MRI? (5)

(b) Describe with the help of diagram the various parts of an MRI system and its working. What are the advantages over CT? (20)

2. (a) Define Isotope and Isomer. (5)

(b) Explain with diagram the working of a scintillation detector system for gamma delection. (20)

3. Write short notes on : (5 × 10 = 50)

(a) Ultrasound transducers.

(b) Compton effect.

(c) Film Badge.

(d) X ray grids.

(e) D.S.A.

November-2001

[KE 143] **Sub. Code : 2040**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VIII — Radiodiagnosis

Part II — Preliminary

MEDICAL RADIATION PHYSICS AS APPLIED TO RADIODIAGNOSIS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe in detail mammography. Explain the different image receptors employed. (25)

2. Describe the various processes by which X rays interact with matter. (25)

3. Write short notes on : (5 × 10 = 50)

   (a) Doppler ultrasonography.

   (b) PET.

   (c) Grids.

   (d) Film badge.

   (e) Cine radiography.

September-2002

[KH 143] **Sub. Code : 2039**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VIII — Radio Diagnosis

Part II — Preliminary

MEDICAL RADIATION PHYSICS AS APPLIED TO RADIO DIAGNOSIS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe in detail various protective measures in diagnostic and therapy departments. (25)

2. What are X-rays? Describe with neat diagram the construction and working of modern X-ray tube. (25)

3. Write short notes on : (5 × 10 = 50)

(a) Resistances in series and parallel

(b) Tube rating charts

(c) Factors affecting radio graphic quality

(d) Photo multiplier tube

(e) Cyclotron.

April-2003

[KI 143] **Sub. Code : 2040**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VIII — Radiodiagnosis

Part II — Preliminary

MEDICAL RADIATION PHYSICS AS APPLIED TO RADIO DIAGNOSIS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Briefly outline the various physical principles involved in X–ray therapy. (25)

2. Describe the working of a scintillation counter for detecting gamma rays. (25)

3. Write short notes on : (5 × 10 = 50)

   (a) Half life and average life

   (b) Radio active equilibrium

   (c) Capacitors in series and parallel

   (d) Greniacher and Villard circuit

   (e) Tele CO^{60} unit.

October-2003

[KJ 143] **Sub. Code : 2040**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch VIII — Radiodiagnosis

Part II — Preliminary

MEDICAL RADIATION PHYSICS AS APPLIED TO RADIO DIAGNOSIS

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the answer sheet provided as per the instructions on the first page.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

Essay Questions : (2 × 15 = 30)

1. Analyse the characteristic curve of an X–ray film.

2. Discuss different radioactive isotopes used for medical imaging.

Short notes questions : (10 × 5 = 50)

3. (a) Silverless radiology department.

(b) TLD as a personnel monitoring device.

(c) Detectors used in CT scanner.

(d) Bucky factor and grid ratio.

(e) Heel effect and it's importance.

(f) Dedicated mammography X–ray units.

(g) Rare earth screens.

(h) Developer and it's ingredients.

(i) Different types of cassettes.

(j) High frequency X–ray units.

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