THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0321] MARCH 2021 Sub. Code: 1942

(AUGUST 2020 EXAM SESSION)

B.Sc. RADIOTHERAPHY TECHNOLOGY

FIRST YEAR (Regulations 2018-2019)

PAPER II – RADIATION PHYSICS & BASIC OF CLINICAL RADIOGRAPHY/IMAGING

Q.P. Code : 801942

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(3 x 10 = 30)**

1. What is attenuation? Describe various interaction of X-rays and gamma rays with matter.
2. Discuss the primary radiological image formation. Explain X-ray film construction and film characteristics.
3. Describe the Computed Tomography equipment and explain the image reconstruction methods.

II. Write Notes on: **(8 x 5 = 40)**

1. Constituents of atoms and atomic energy levels.
2. Capacitors in series and parallel connection.
3. Control of mA circuit.
4. Characteristic X- ray spectrum.
5. Alpha and Beta decay with examples.
6. Constituents of developer.
7. Construction and working of image intensifier tube.
8. Positron emission tomography.

III. Short Answers on: **(10 x 3 = 30)**

1. Atomic number and mass number.
2. Ohm’s law and Joule’s law.
3. Magnetic induction.
4. Heel effect and its significance.
5. Natural and artificial radioactivity.
6. Mass attenuation coefficient.
7. Fog and noise.
8. Factors affecting fluoroscopic image.
9. CT numbers.
10. Bio-effects of MRI.

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