MANIPAL INSTITUTE OF TECHNOLOGY
(A constituent unit of MAHE, Manipal 576104)

VI SEMESTER B.Tech.(BME) DEGREE MAKE UP EXAMINATIONS, JUNE 2019

SUBJECT: BASIC CLINICAL SCIENCES III (BME 3201)
(REVISED CREDIT SYSTEM)
Friday, 7th June 2019 : 2 PM to 5 PM

TIME: 3 HOURS **MAX. MARKS: 100**

Instructions to Candidates:
1. **Answer ALL questions from PART- A, PART-B and PART- C. Use separate answer books for PART-A, PART-B and PART-C.**
2. **Draw neat labeled diagram wherever necessary.**

PART- A: RADIOLOGY (Max. Marks 30)

1. Define Films. Enumerate the layers of Film with a diagram. Explain sensitivity speck. Explain emulsion characteristics 2+2+2+4

2. Define Radiographic quality. Enumerate the four factors affecting Radiographic Quality .Define Density and describe the five factors affecting the density of a film. 2+2+1+5

3. Name at-least four basic interactions of x-rays with matter. 2+2+2+4
Mention which among these interactions does not cause ionization and which one is responsible for the production of Characteristic radiation.
Draw schematic diagram depicting the production of characteristic radiation.
Explain the advantages and disadvantages of the interaction responsible for the Characteristic radiation.

PART- B: RADIOTHERAPY. (Max. Marks 40)

1. (i) List the late effects of Radiation on any 4 organ systems. 4

   (ii) Discuss about therapeutic ratio and normal tissue tolerance with respect to radiotherapy. 3+3

2. (i) Discuss Fractionation in radiotherapy. 5

   (ii) List the modifiers of Radiation response. 5

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3. (i) Discuss DNA repair mechanisms. 5

(ii) Discuss briefly about Survival Curves. 5

4. Explain characteristics of ideal brachytherapy source. 10

PART-C: NEUROLOGY (Max. Marks 30)

1. Discuss Nerve conduction studies and clinical application. 10

2. Describe the anatomy of the spinal cord, and function of the various tracts. 10

3. Discuss Evoked Potentials – techniques and uses. 10