Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent unit of MAHE, Manipal 576104)

VI SEMESTER B.Tech.(BME) DEGREE END SEM EXAMINATIONS, APR/MAY 2019

SUBJECT: BASIC CLINICAL SCIENCES III (BME 3201)
(REVISED CREDIT SYSTEM)
Tuesday, 23rd April, 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 Radiographic quality. Enumerate the four factors affecting Radiographic Quality. Define Density and describe the five factors affecting the density of a film — 2+2+6

2. Name at-least four basic interactions of x-rays with matter. 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. — 2+2+2+4

3. Define intensifying screens. Draw the construction of the intensifying screen. Enumerate the ideal properties of Phosphor. Name the types of screens and mention their screen speed number. — 1+2+3+4

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

1. What is Acute Radiation Syndrome? What are its sub syndromes? Write in detail about any one of them. — 2+3+5

2. Discuss about Oxygen Enhancement Ratio, Linear Energy Transfer and Relative Biological Effectiveness. — 3+4+3

3. (i) What do you understand by Radiosensitivity, Radiocurability and Radio Resistance of tumors? 2+2+2

(ii) Discuss in brief about the radiation induced DNA damage. 4

4. Write down the difference between electron mode therapy and photon mode therapy with diagram? 10

PART-C: NEUROLOGY (Max. Marks 30)

1. Describe briefly about the structure of neuromuscular junction. Explain about transmission across a neuromuscular junction. 10

2. Explain Resting membrane potential and action potential. 10

3. Describe about the anatomy of the brain with diagrams including: 10
   - Structural areas.
   - Functional areas.