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MANIPAL INSTITUTE OF TECHNOLOGY
(Manipal University)
Manipal – 576 104



VI SEMESTER B.Tech.(BME) DEGREE MAKE-UP EXAMINATIONS, JUNE/JULY 2016

SUBJECT: BASIC CLINICAL SCIENCES III (BME 302)
(REVISED CREDIT SYSTEM)

Friday, July 1st, 2016 : 2 to 5 pm

TIME: 3 HOURS

MAX. MARKS: 100

Instructions to Candidates:

1. Answer any **THREE** full questions from **PART- A**, any **FOUR** full questions from part **B** and any **THREE** full questions from **PART- C**. Use separate answer books for **PART-A**, **PART-B** and **PART-C**.
2. Draw labeled diagram wherever necessary.

PART- A. RADIOLOGY (Max. Marks 30)

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| Q1) Discuss in detail, Interaction of x-ray with matter | 10 |
| Q2) Explain in detail, factors affecting Radiographic Quality | 10 |
| Q3) Explain in detail, Digital Radiography | 10 |
| Q4) Discuss on MRI Physics and basic pulse sequences | 10 |

PART- B. RADIOTHERAPY (Max. Marks 40)

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| Q1) (i) What is therapeutic ratio ?
(ii) How can the Therapeutic ratio be modified? | 4+6 |
| Q2) (i) What are the various fractionation schedules in radiotherapy?
(ii) Write briefly about any two of them | 4+6 |
| Q3) (i) What do you understand by Stochastic and Non Stochastic effects?
(ii) List the various cancers that can be caused by radiation. | 6+4 |
| Q4) (i) Describe the structure of Human DNA (Deoxyribonucleic acid).
(ii) Describe the mechanism of Radiation induced DNA Damage. | 6+4 |
| Q5) (i) Write a short note on TLD.
(ii) How high energy X-ray beams are produced in linac? | 5+5 |

PART-C. NEUROLOGY (Max. Marks 30)

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| Q1) What is Repetitive Stimulation in Neurology? Mention its technique and uses. Also describe about the late responses in nerve conduction studies. | 10 |
| Q2) Write a note on neuroimaging in stroke. | 10 |
| Q3) Write notes on epilepsy and its evaluation. | 10 |
| Q4) Discuss on Evoked potentials. | 10 |