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



VI SEMESTER B.Tech.(BME) DEGREE END SEM EXAMINATIONS, MAY 2016

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

Monday, 9th May, 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)

- Q1) Discuss in detail, factors affecting Radiographic Quality. 10
- Q2) Explain in detail, Digital Radiography. 10
- Q3) Discuss in detail, Devices affecting radiographic quality. 10
- Q4) Discuss in detail, USG physics. 10

PART- B. RADIOTHERAPY (Max. Marks 40)

- Q1) (i) What is a cell survival curve? 3+7
- (ii) Describe the Linear Quadratic Model .
- Q2) (i) What are the 4 'R' 's of Radiobiology? 4+6
- (ii) Write in detail about any 2 of the 'R' 's.
- Q3) (i) List the principal effects of radiation on fetus/embryo 5+5
- (ii) List the late effects of radiation on any 5 organs of the human body
- Q4) (i) Write a short note on microwave power source such as magnetron and klystron. 5+5
- (ii) What are the Requirements for an ideal brachytherapy source?
- Q5) (i) Define Acute Radiation Syndrome and list the 3 syndromes. 4+6
- (ii) Describe in Detail any one of the syndrome.

PART-C. NEUROLOGY (Max. Marks 30)

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| Q1) | Enumerate stages of sleep and disorder in sleep. | 10 |
| Q2) | Write notes on computerized tomography and MRI. Compare and contrast clinical utility of CT scan verses MRI. | 10 |
| Q3) | Write notes on lobes of the brain and their main functions. | 10 |
| Q4) | Write notes about principles of EEG, techniques and clinical usefulness. | 10 |