

B.Tech
(SEM VIII) THEORY EXAMINATION 2017-18
PRINCIPLE OF RADIO DIAGNOSIS AND RADIO THERAPY

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

- a) What are X-rays?
- b) Describe filament circuits.
- c) Explain the meaning of bucky grids.
- d) Explain the use of tables and arms.
- e) Explain film exposure time.
- f) Discuss some applications of photo timers.
- g) Explain the types of angiography.
- h) What is digital angiography?
- i) Explain some advantages of radio therapy.
- j) What do you mean by ISODOSE charts?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

- a) Describe the various components of a radiographic system with the help of a suitable diagram.
- b) What is radiography collimeter? Explain how scattered radiations are controlled in radiography collimeter.
- c) What do you mean by photo timers? Describe the different types of by photo timers. Describe their limitations.
- d) Discuss the applications of digital angiography. Explain digital subtraction angiography.
- e) Explain the principle of linear accelerators for radiation therapy. Explain the physical principles of radiation therapy.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Describe the various types of X-ray tubes for medical applications.
- (b) Explain the working of an X-ray unit. With the help of a block diagram explain the electrical circuit of an X-ray unit.

- 4. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) What do you mean by Fluoroscopy systems? Explain the TV chain for Fluoroscopy.
- (b) Describe the various characteristics of an imaging system. Explain the properties of X-ray films and X-ray screens.
- 5. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Explain the working of an automatic brightness control system. Describe its applications and advantages.
- (b) What are Serial film chargers? Describe the various types of Serial film chargers.
- 6. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Describe the architecture of image processor for digital angiography.
- (b) Explain the Temporal integration technique for digital angiography. Describe the applications also.
- 7. Attempt any *one* part of the following: **10 x 1 = 10****
- (a) Explain the various protection methods and safety protocols.
- (b) Explain the principle of radio therapy. Explain the concept of Radiation therapy planning.