

**B. TECH. (CBCS - 2014 COURSE) SEM – VIII (BIOMEDICAL  
ENGG.) : SUMMER - 2018  
SUBJECT-NUCLEAR MEDICINE**

Day: **Tuesday**  
Date: **05/06/2018**

**S-2018-4714**

Time: **02.30 PM TO 05.30 PM**  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

**Q.1.** Define nuclear medicine. Also explain in detail radioactive decay process. **(10)**

**OR**

Explain in detail working of semi conductor detector with neat diagram. Write a note on inorganic scintillator and organic scintillator.

**Q.2.** Draw and explain in detail functional block diagram of counting system. **(10)**

**OR**

Explain the working of multi channel pulse height analyzer. Write a note on amplifiers and pre-amplifiers used in a radiation detection system.

**Q.3.** Define hospital Radiopharmacy and explain in detail ideal characteristics of Radiopharmaceuticals. **(10)**

**OR**

Explain in detail mechanism of localization of radiopharmaceuticals in nuclear medicine.

**Q.4.** Explain the working principle of positron emission tomography (PET) system. What is Time activity curve? **(10)**

**OR**

With the help of constructional detail explain the working of single photon emission computed tomography (SPECT) system.

**Q.5.** Describe in detail radiometric devices. What are the diagnostic applications of radiopharmaceuticals in nuclear medicine? **(10)**

**OR**

Explain in detail various types of Radio Immuno Assay Counters.

**Q.6.** Describe in detail treatment for removal of internally deposited radionuclide. Define the radiation measuring units: **(10)**

- i) Rontgen
- ii) Rad

**OR**

Explain in detail control of external and internal radiation exposure

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