

Radiological Sciences Department  
Examination Sample  
Subject: Nuclear Medicine I (RAD 432)

**Please answer ALL the questions**

**Q<sub>1</sub>. MCQ, Circle the most correct answer**

1. The primary responsibility for the quality of radiopharmaceutical agents rests with
  - a) the hospital pharmacy.
  - b) **the manufacturer.**
  - c) the nuclear medicine department.
  - d) all of the above.
  - e) none of the above
2. Radionuclide purity for  $^{99}\text{Mo} / ^{99\text{m}}\text{Tc}$  generator must be performed,
  - a) **each time a  $^{99}\text{Mo}$  generator is eluted.**
  - b) Only when  $^{99}\text{Mo}$  generator is eluted for the first time.
  - c) Once the  $^{99}\text{Mo}$  generator is received and eluted.
  - d) all of the above.
  - e) none of the above
3. The principal factors which need to be considered when selecting a radionuclide for imaging are:
  - a) the type of radiation emitted
  - b) the energy and abundance of gamma rays.
  - c) the half-life.
  - d) **all of the above.**
  - e) none of the above.
4. The test used to quantify radiochemical purity for  $^{99\text{m}}\text{Tc}$ -labeled agents prepared from "kits" is:
  - a) test strip impregnated with chemicals.
  - b) **thin-layer chromatography.**
  - c) thick-layer chromatography.
  - d) a and b.
  - e) none of the above.

**Q<sub>2</sub>. List the major components of a gamma camera?**

1. **Collimator,**
2. **Sodium iodide crystal**
3. **Photomultiplier tubes**
4. **The console containing pulse processing electronics and displays.**

**Q3. Answer (T) for True and (F) for False.**

	T or F
1. The primary responsibility for the quality of radiopharmaceutical agents rests with the hospital radiopharmacy.	F
2. The test used to quantify radiochemical purity for $^{99m}\text{Tc}$ -labeled agents prepared from "kits" is thick-layer chromatography.	F
3. Radionuclide purity for $^{99}\text{Mo}/^{99m}\text{Tc}$ generator must be performed each time a $^{99}\text{Mo}$ generator is eluted.	T

**Q4. Fill in the blanks**

1. Oral preparations of radiopharmaceutical agents may be ..... **capsules** or ..... **solutions** containing a fixed amount of radioactivity at a fixed date and time.
2. Using high-energy collimator with low-energy photons results in a ..... **low** camera ..... **efficiency**.
3. Gamma camera quality assurance procedures are carried out at an appropriate frequency to assure that the performance of the system does not affect ..... **clinical results**.