# Exam Practice 2

1. Recite the product of each photon interaction, and what happens to the photon.

2. Recite the requirements for each photon interaction.

3. Describe how gaseous detectors work.

4. Describe the general use-cases for each type of gaseous detector.

5. Differentiate between the categories of detectors when given a list of specific detectors.

6. Recite the important characteristics of the Farmer Ionization Chamber (volumes, size, materials).

7. Describe the general use-cases for semiconductor detectors, and how this differs from gaseous detectors.

8. Explain the process of thermoluminescence, and how this is used in TLDs. (including electron traps)

9. Recite the device that typically records the data from a TLD.

10. Recite the most common TLD material.

11. Recite the important characteristics of film as a radiation detector (atomic number, use-cases, processing).

12. Draw the chart that shows the dominant photon interaction modes by kinetic energy and atomic number with accurate axes.

13. Identify what photon interaction mode increases greatly at low energies, and is heavily affected by atomic number (different tissue types, bone, soft tissue).

14. Recite which gaseous detectors use quenching gases.

15. Identify each region of the voltage response curve.

16. Recite the average energy required to ionize air.

17. Perform calculations that involve the average energy required to ionize air.

18. Explain the process of PET imaging, and how it differs from the other nuc. med. modes.

19. Explain the process of SPECT imaging, and how it differs from the other nuc. med. modes.

20. Identify which theoretical radionuclides (half-life, emission type, and energy) might be useful for different imaging or therapy modalities.

21. Identify which region of the optical density curve is proportional to dose deposition.

22. Recite the differences between radiochromic and radiographic film.

23. Explain the process of annihilation, and how it differs from pair-production.

24. Recite the conditions necessary for radionuclides to undergo each type of decay (particle excesses).

25. Recite the purpose of grids/collimators in radiology.

26. Explain the purpose of PHA windows and the cases where the window disregards events.

27. Recite the products of radioactive decay modes.

28. Recite the use cases for the common iodine radionuclides.

29. Recite where certain collimators might be found in the nuc. med. department.