1. Sketch the energy spectrum of an X-ray imaging field directed to the patient and express the factors affecting the distribution.

2. Explain the principle of Compton scattering. What factors affect the energy of scattered photon? How does the amount of Compton scattering depend on the material and energy?

3. How are X-ray tubes, accelerators and reactors applied in clinical imaging and therapy?

4. What are the differences between depth dose distributions of photon, electron and neutron beams in the tissue?

5. Calculate the de Broglie wavelengths of (a) an electron, (b) a proton, and (c) an α particle of 880-eV kinetic energy.