Linear Accelerators

138. In order to accelerate electrons, linear accelerators use:

A. Ultrasound waves
B. Electromagnetic waves
C. Ultraviolet rays
D. Low energy rays

139. The frequency of electromagnetic waves typically used in linear accelerators to accelerate electrons is:

A. 3 kHz
B. 30 MHz
C. 300 MHz
D. 3000 MHz
E. 3000 GHz

140. In a standing wave accelerator, the energy gained by an electron is approximately:

A. 10 keV/cm
B. 20 keV/cm
C. 75 keV/cm
D. 150 keV/cm

141. Which of the following is not an accelerator component:

A. Waveguide
B. Transducer
C. Circulator
D. Modulator
E. Thyratron

142. The sources of accelerating power in a linear accelerator are:

A. Thyratron and electron gun
B. Klystron and magnetron
C. Magnetron and electron gun
D. Buncher and pre-buncher

143. A magnetron in a 4 - 6 MV linear accelerator typically operates at a peak power of:

A. 0.5 MW
B. 1.0 MW
C. 2.0 MW
D. 2.5 MW
E. 3.0 MW

144. Typical Klystron used in high energy linear accelerators (10-25 MeV) operates at a peak power of:

A. 1.0 MW
B. 2.0 MW
C. 3.0 MW
D. 5.0 MW
E. 10.0 MW

145. In a linear accelerator, the flattening filter is used to:

A. Flatten the front end of the accelerator head
B. Make the beam intensity uniform
C. Produce electron beams
D. Filter the neutrons from the beam

146. The flattening filter typically is made of:

A. Low Z material
B. Lead or tungsten
C. Inert materials
D. Zinc or copper

147. Which of the following does not accelerate electrons:

A. Microtron
B. Betatron
C. Cyclotron
D. X-ray tube
E. Van de Graaf generator