

## Iannucci: Dental Radiography, 4<sup>th</sup> Edition

### Chapter 01: Radiation History

#### Test Bank

#### MULTIPLE CHOICE

1. Radiation is defined as:
  - A. A form of energy carried by waves or streams of particles.
  - B. A beam of energy that has the power to penetrate substances and record image shadows on photographic film.
  - C. A high-energy radiation produced by the collision of a beam of electrons with a metal target in an x-ray tube.
  - D. A branch of medicine that deals with the use of x-rays.

ANS: A

	Feedback
A	Radiation is a form of energy carried by waves or streams of particles.
B	An x-ray is a beam of energy that has the power to penetrate substances and record image shadows on photographic film.
C	X-radiation is a high-energy radiation produced by the collision of a beam of electrons with a metal target in an x-ray tube.
D	Radiology is a branch of medicine that deals with the use of x-rays.

PTS: 1                      REF: Page 2, Basic Terminology

2. A radiograph is defined as:
  - A. A beam of energy that has the power to penetrate substances and record image shadows on photographic film.
  - B. A picture on film produced by the passage of x-rays through an object or body.
  - C. The art and science of making radiographs by the exposure of film to x-rays.
  - D. A form of energy carried by waves or a stream of particles.

ANS: B

	Feedback
A	An x-ray is a beam of energy that has the power to penetrate substances and record image shadows on photographic film.
B	A radiograph is a picture on film produced by the passage of x-rays through an object or body.
C	Radiography is the art and science of making radiographs by the exposure of film to x-rays.
D	Radiation is a form of energy carried by waves or streams of particles.

PTS: 1                      REF: Page 3, Basic Terminology

3. Which of the following statements is *true* regarding the importance of dental radiographs?
- A. An oral examination with dental radiographs limits the practitioner to what is seen clinically.
  - B. All dental diseases and conditions produce clinical signs and symptoms.
  - C. Dental radiographs are not a necessary component of comprehensive patient care.
  - D. Many dental diseases are typically discovered only through the use of dental radiographs.

ANS: D

	Feedback
A	An oral examination without dental radiographs limits the practitioner to what is seen clinically.
B	Many dental diseases and conditions produce no clinical signs and symptoms.
C	Dental radiographs are a necessary component of comprehensive patient care.
D	Many dental diseases are typically discovered only through the use of dental radiographs.

PTS: 1

REF: Page 3, Importance of Dental Radiographs

4. The x-ray was discovered by:
- A. Heinrich Geissler
  - B. Wilhelm Roentgen
  - C. Johann Hittorf
  - D. William Crookes

ANS: B

	Feedback
A	Heinrich Geissler built the first vacuum tube in 1838.
B	Wilhelm Roentgen discovered the x-ray on November 8, 1895.
C	Johann Hittorf observed in 1870 that discharges emitted from the negative electrode of a vacuum tube traveled in straight lines, produced heat, and resulted in a greenish fluorescence.
D	William Crookes discovered in the late 1870s that cathode rays were streams of charged particles.

PTS: 1

REF: Page 3, Roentgen and the Discovery of X-Rays

5. Who exposed the first dental radiograph in the United States using a live person?
- A. Otto Walkoff
  - B. Wilhelm Roentgen
  - C. Edmund Kells
  - D. Weston Price

ANS: C

	Feedback
A	Otto Walkoff was a German dentist who made the first dental radiograph.
B	Wilhelm Roentgen was a Bavarian physicist who discovered the x-ray.
C	Edmund Kells exposed the first dental radiograph in the United States using a live person.
D	Weston Price introduced the bisecting technique in 1904.

PTS: 1 REF: Page 5, Pioneers in Dental X-Radiation

6. William Rollins:
- A. Established the first college course in radiography for dental students.
  - B. Was the first to use film in intraoral radiography.
  - C. Developed the first dental x-ray unit.
  - D. Developed the first hot cathode x-ray tube.

ANS: C

	Feedback
A	Howard Riley Raper developed the first college course in radiography for dental students.
B	Frank Van Woert was the first dentist to use film in intraoral radiography.
C	William Rollins developed the first dental x-ray unit.
D	William D. Coolidge developed the first hot cathode x-ray tube.

PTS: 1 REF: Page 5, Pioneers in Dental X-Radiation

7. The variable kilovoltage x-ray machine was introduced in:
- A. 1895
  - B. 1913
  - C. 1923
  - D. 1957

ANS: D

	Feedback
A	Wilhelm Roentgen discovered the x-ray in 1895.
B	William Coolidge developed the first hot cathode x-ray tube in 1913.
C	A miniature version of the x-ray tube was placed inside the head of an x-ray machine and immersed in oil by the Victor X-Ray Corporation in 1923.
D	The variable kilovoltage x-ray machine was introduced in 1957.

PTS: 1 REF: Page 6, Table 1-1 Highlights in the History of Dental Radiography

8. Current fast radiographic film requires less than \_\_\_\_ % of the initial exposure times used in 1920.
- A. 25
  - B. 10
  - C. 5
  - D. 2

ANS: D

	<b>Feedback</b>
<b>A</b>	The exposure time has been reduced to less than 2% of what it was in 1920.
<b>B</b>	The exposure time has been reduced to less than 2% of what it was in 1920.
<b>C</b>	The exposure time has been reduced to less than 2% of what it was in 1920.
<b>D</b>	Current fast radiographic film requires less than 2% the initial exposure times used in 1920.

PTS: 1

REF: Page 5-6, History of Dental X-Ray Film