Patient Care in Radiography 10th edition Ehrlich Test Bank

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Chapter 02: Image Quality Factors
Ehrlich: Patient Care in Radiography: With an Introduction to Medical Imaging, 10th Edition

MULTIPLE CHOICE

1. An x-ray exposure is made using the following factors: 200 mA, 0.04 seconds, 80 kVp, and 48 inches SID. In this case, which represents the value of the mAs?
   a. 0.08
   b. 0.8
   c. 8
   d. 16,000

   ANS: C REF: p. 22 OBJ: 3

2. An increase in OID will result in
   1. increased magnification.
   2. decreased image detail.
   3. increased image detail.
   a. 1 only
   b. 2 only
   c. 1 and 2
   d. 1 and 3

   ANS: C REF: p. 30 OBJ: 6

3. Which term is defined as a measure of current flow rate in the x-ray tube circuit?
   a. mAs
   b. kVp
   c. Exposure time
   d. Milliamperage

   ANS: D REF: p. 25 OBJ: 1

4. In order to increase the penetration of the x-ray beam, which factor should be increased?
   a. Kilovoltage
   b. Milliamperage
   c. mAs
   d. Exposure time

   ANS: A REF: p. 28 OBJ: 4

5. When all other exposure factors are equal, which exposure time would produce the greatest quantity of x-rays?
   a. 1 millisecond
   b. 10 milliseconds
   c. 0.1 seconds
   d. 0.01 seconds

   ANS: C REF: p. 27 OBJ: 2

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6. Magnification is affected by
   a. OID only.
   b. SID only.
   c. both OID and SID.
   d. neither OID nor SID.

   ANS: C REF: p. 29 OBJ: 4 | 6 | 7

7. An image receptor that contains a photostimulable plate that is converted to an image by processing with a laser is part of a system called
   a. digital radiography (DR).
   b. computed radiography (CR).
   c. a film/screen system.
   d. digital fluoroscopy.

   ANS: B REF: p. 26 OBJ: 8

8. Radiation exposure is directly proportional to
   a. OID.
   b. kVp.
   c. mAs.
   d. SID.

   ANS: C REF: p. 22 OBJ: 3

9. An image that is black in the darkest areas and white in the lightest areas is said to have
   a. high contrast.
   b. sharp detail.
   c. low contrast.
   d. poor detail.

   ANS: A REF: p. 31 OBJ: 10

10. What is used to determine if the exposure factors were correct on a digital image?
    a. Exposure indicator number
    b. Visual clues (too light or too dark)
    c. Technique chart
    d. Optical density number

    ANS: A REF: p. 28 OBJ: 13

11. An increase in kVp affects the x-ray beam by causing it to
    a. have greater intensity.
    b. be more homogeneous.
    c. cover a larger area.
    d. contain more long wavelengths.

    ANS: A REF: p. 23 OBJ: 4

12. Image detail is affected by
    a. mAs and kVp.
    b. kVp and SID.
    c. focal spot size and patient motion.

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d. focal spot size and mAs.

ANS: C REF: p. 28 OBJ: 12

13. When a radiographic image is visible immediately after exposure, without the need for processing, the image receptor system is of the type called
a. digital radiography (DR).
b. computed radiography (CR).
c. fluoroscopy.
d. picture archiving and communications (PACS).

ANS: A REF: p. 27 OBJ: 8

14. When a large OID causes poor image detail, this can be compensated to some degree by increasing the
a. kVp.
b. SID.
c. mAs.
d. field size.

ANS: B REF: p. 28 OBJ: 7 | 12

15. When a change in SID necessitates a change in another factor in order to maintain image quality, the factor used to compensate is
a. kVp.
b. SID.
c. mAs.
d. field size.

ANS: C REF: p. 24 OBJ: 7

16. Which statement is *false* regarding digital annotation?
a. Annotations should be added outside of imaged anatomy.
b. Annotation of side markers has replaced the use of traditional inherent markers.
c. Annotation may be used to add explanatory notes for the radiologist.
d. Annotation may be used to specify the patient position or projection, i.e., upright, cross-table.

ANS: B REF: p. 27 OBJ: 13

17. Unequal magnification of various portions of the radiographic subject affects the image factor called
a. optical density.
b. image contrast.
c. image detail.
d. shape distortion.

ANS: D REF: p. 30 OBJ: 9

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