

Specialized Topics in Areas of Radiologic Sciences
P.O. Box 2931 Toledo, Ohio 43606
Phone: 419-471-1973
Website: www.xrayhomestudies.com

Unit 40

Patient Care in Radiography

by

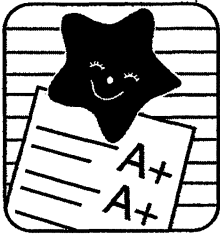
Ruth Ann Ehrlich, Ellen Doble McCloskey & Joan A. Daly

Prepared by: Carolyn J. Frigmanski, M.A., B.S.R.T. ®
Founder, S.T.A.R.S.

Seventh Edition

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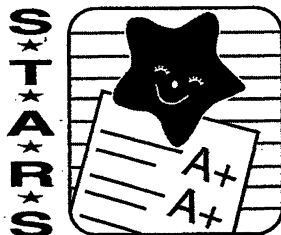
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**Carolyn J. Frigmanski, M.A., B.S.R.T. ®
Founder, S.T.A.R.S.**



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Unit 40

Title: Patient Care in Radiography by Ruth Ann Ehrlich, Ellen Doble McCloskey & Joan A. Daly
Please complete the answer sheet at the conclusion of this post test and return it to the S.T.A.R.S. office.

Chapter 1

1. The scientist who discovered "x rays" and published a paper describing their properties was
 - a. Marie Curie
 - b. Wilhelm Conrad Roentgen
 - c. Albert Einstein
 - d. Pierre Curie
2. The first radiographic film was produced in 1914 by
 - a. Michael Pupin
 - b. Louis Daguerre
 - c. George Eastman
 - d. William Coolidge
3. One of the basic components for the current production of x-rays is
 - a. a source of electrons
 - b. elements of low atomic number
 - c. a Crookes tube
 - d. a copper target
4. The electromagnetic energy term used to describe the distance from one crest to another is
 - a. amplitude
 - b. cycle
 - c. frequency
 - d. wavelength
5. The average wavelength of a diagnostic x-ray beam is approximately _____ nanometers.
 - a. 1.0
 - b. 0.001
 - c. 0.1
 - d. 1.5
6. The term used to describe the radiation that remains after attenuation by matter is
 - a. scatter
 - b. remnant
 - c. secondary
 - d. primary
7. Grids are recommended for use on body parts measuring more than _____ to _____ cm in thickness.
 - a. 6/8
 - b. 5/10
 - c. 14/20
 - d. 10/12
8. The measure of the current flow in the x-ray tube circuit is called
 - a. milliamperage
 - b. mAs
 - c. electron volts
 - d. kilovolts
9. The recommended kilovoltage range for spine radiography is between
 - a. 60 and 75
 - b. 70 and 90
 - c. 75 and 100
 - d. 85 and 110

10. Intensifying screens with larger crystals and/or thicker layers will provide
- a. more dose to the patient
 - b. slow speed
 - c. maximum detail
 - d. less dose to the patient
11. The laser device that scans conventional radiographs in a filmless radiography system is called a
- a. digitizer
 - b. analyzer
 - c. photomultiplier tube
 - d. cathode ray tube
12. The primary controlling factor of density is
- a. kilovoltage
 - b. mAs
 - c. screen speed
 - d. patient tissues
13. The SI unit of measurement that describes dose units is called the
- a. sievert
 - b. Gray
 - c. rem
 - d. Roentgen
14. The human cell type that is LEAST sensitive to radiation injury is the
- a. erythrocyte
 - b. lymphocyte
 - c. nerve cell
 - d. cardiac cell
15. The approximate whole-body radiation dose fatal to 50% of the irradiated population within 30 days is
- a. 300 rads
 - b. 500 rads
 - c. 100 rads
 - d. 1,000 rads
16. One of the long-term somatic effects of radiation exposure is
- a. erythema
 - b. callus formation
 - c. "radiation sickness"
 - d. cataractogenesis
17. The personnel radiation monitoring device that uses one or more lithium fluoride crystals is
- a. OSL
 - b. TLD
 - c. film badge
 - d. pocket dosimeter
18. The upper EDE limit for occupationally exposed personnel is _____ rems per year.
- a. 10
 - b. 50
 - c. 5
 - d. 100
19. The EDE limit of whole-body radiation for a pregnant worker is _____ rems over the nine month period.
- a. 0.5
 - b. 5.0
 - c. 50
 - d. 1.0

Chapter 2

20. The oldest and largest national professional association for technologists in the radiologic sciences is
- a. American Registry of Radiologic Technologists
 - b. American College of Radiology
 - c. Association of Educators in Radiologic Science
 - d. American Society of Radiologic Technologists
21. The highest level on the hierarchy of needs pyramid is
- a. esteem
 - b. self-actualization
 - c. security
 - d. love, acceptance

Chapter 4

34. A major potential source of fire hazard in radiology departments is
- a. chemical combustion
 - b. spontaneous combustion
 - c. electrical failures
 - d. unauthorized smoking by patients or employees
35. When a fire is discovered, the radiographer's first responsibility is to
- a. evacuate everyone in the immediate area
 - b. tell a supervisor or manager
 - c. activate all fire alarms in the department
 - d. call 9-1-1 or any emergency response number
36. Class ____ fire extinguishers can be utilized on fires involving electrical equipment and/or wiring.
- a. B
 - b. A
 - c. D
 - d. C
37. When pouring or clearing up darkroom chemical spills, radiographers must wear ____ gloves.
- a. latex
 - b. nitrile
 - c. rubber
 - d. cotton
38. The most commonly reported injuries and/or disorders by health care workers involve the ____ system.
- a. neuromuscular
 - b. respiratory
 - c. musculoskeletal
 - d. vascular
39. The principles of proper body alignment, movement and balance are collectively referred to as
- a. body mechanics
 - b. ergonomics
 - c. kinesiology
 - d. mechanical physiology
40. A body position called ____ can be utilized in the treatment of patients suffering from shock.
- a. Fowler's
 - b. Trendelenburg
 - c. lithotomy
 - d. Sims'
41. A body position called ____ can be utilized in the treatment of patients suffering from nausea.
- a. Fowler's
 - b. Trendelenburg
 - c. lithotomy
 - d. Sims'
42. Long periods of rest may give patients' feelings of light headedness or faintness due to
- a. gravitational imbalance
 - b. positional hypertension
 - c. orthostatic hypotension
 - d. lack of cerebral circulation
43. Patients who have hip replacements via the posterior approach must not flex at the hip beyond ____ degrees.
- a. 30
 - b. 45
 - c. 60
 - d. 90
44. The application of physical restraints on an adult patient must be authorized by an order from the
- a. nurse
 - b. physician
 - c. risk manager
 - d. chief of staff

Chapter 5

45. The classification of microorganisms that are responsible for causing diseases are described as
- a. pathogens
 - b. microbial agents
 - c. nosocomial carriers
 - d. bacteria

46. Bacteria that require oxygen to grow are known as

- a. anaerobes b. facultative c. obligate aerobes d. endospores

47. The causative agent for Rocky Mountain spotted fever has been identified as

- a. a virus b. *Escherichia coli* c. cocci bacteria d. *Rickettsiae*

48. Chicken pox and herpes zoster are caused by

- a. fungi b. varicella c. streptococcal bacteria d. endospores

49. "Infectious proteins" are microbes called

- a. infectious RNA b. proteinions c. contagious RNA d. prions

50. A commonly and frequently occurring protozoal disease is

- a. toxoplasmosis b. malaria c. German measles d. shingles

Identify the mode of transmission in Column B with the pathogenic agents listed in Column A.

Column A

51. *Mycobacterium tuberculosis*

52. *Staphylococcus aureus*

53. *Plasmodium* species

54. Mumps

55. Herpes simplex, type 2

56. *Escherichia coli* O157:H7

57. A common and serious hospital-acquired, multi-drug resistant infection is

- a. *Bordetella pertussis* c. *Salmonella* species
b. Vancomycin-resistant enterococci d. measles virus

58. A needlestick injury is the most efficient method of transmitting hepatitis _____ virus.

- a. A b. D c. C d. B

59. Droplet contamination exists in an area of _____ feet or less from the source.

- a. two b. four c. three d. six

60. The process of injecting preformed antibodies to a particular infection in a patient is called

- a. passive immunity c. acquired immunity
b. natural resistance d. proactive immunity

61. The outbreak of Hantavirus respiratory syndrome in 1993 was attributed to

- a. chicken flu b. mice droppings c. bat droppings d. deer ticks

62. The predominate type of HIV throughout the world is

- a. immune b. Type 2 c. auto-immune d. Type 1

63. The risk of a Hepatitis C infection following a needlestick for health care workers is ____ to ____ %.

- a. 5/10 b. 10/20 c. 1/2 d. 30/40

64. The simplest and most common method of testing for TB infection is

- a. tuberculin skin test c. chest x-ray
- b. sputum examination d. lung scan

65. The precautions designed to reduce the risk of unrecognized sources of bloodborne and other pathogens in health care institutions are known as

- a. OSHA requirements c. Universal
- b. Standard d. Body Substance

66. An alcohol-based hand wash should contain ____% to ____% isopropanol or ethanol alcohol.

- a. 20/30 b. 30/45 c. 50/60 d. 60/95

67. An inexpensive, effective and readily available disinfectant for preventing the spread of HIV is

- a. hydrogen peroxide c. Clorox bleach
- b. rubbing alcohol d. betadine

68. Contact precautions require radiographers to wear

- a. gloves & gown b. gloves only c. gloves & mask d. gloves, gown & mask

69. The last item of protective apparel to be removed at the conclusion of a procedure is the

- a. mask b. gloves c. gown d. protective goggles

70. Autoclaves operate at temperatures ranging from ____ to ____ degrees Fahrenheit.

- a. 100/200 b. 300/500 c. 500/1,000 d. 250/275

71. A one inch border at the perimeter of a sterile field that is treated as if it were contaminated is called the

- a. borderline b. "buffer zone" c. microbial margin d. end zone

72. During surgical scrub, the actual number of brush strokes to the finger nails is

- a. 30 b. 20 c. 10 d. 40

Chapter 6

73. The level of consciousness described as unconscious but reactive to painful stimuli is

- a. 5 b. 4 c. 2 d. 3

Identify the normal vital signs in Column B with the patient's age in Column A.

Column A

Column B

74. 6 months

a. pulse of 75-80

75. full term newborn

b. blood pressure 115

76. 16 years

c. respirations 24-36

77. 12 years

d. pulse 90

78. 8 years

e. pulse 125

79. The preferred pulse check after catheterization of the femoral artery is

- a. radial b. dorsalis pedis c. femoral d. carotid

80. Patients who are breathing less than 12 breaths per minute are experiencing

- a. bradypnea b. dyspnea c. tachypnea d. cyanosis

81. Normal systolic pressure measures between ____ and ____ mm Hg.

- a. 60/100 b. 80/120 c. 95/119 d. 120/140

82. The normal red blood cell count (RBC) in women is _____ million per ml^3 .

- a. 1.0 to 2.0 b. 4.2 to 5.4 c. 5.0 to 7.0 d. 5.0 to 10.0

83. The normal value for hematocrit (Hct) in adults is

- a. 10 – 20% b. 20 – 30% c. 30 – 40% d. 38 – 54%

84. The normal value for partial thromboplastin time (PTT) is _____ seconds.

- a. 5 – 10 b. 10 – 15 c. 15 – 20 d. 30 – 45

85. The normal value for platelet count is _____ per mm^3 .

- a. 130,000 to 170,000 c. 200,000 to 300,000
b. 150,000 to 450,000 d. 300,000 to 400,000

86. A blood chemistry test that measures the waste product amounts from hemoglobin breakdown is a

- a. BUN b. serum bilirubin c. hemoglobin d. hematocrit

87. The ECG waveform that represents ventricular contraction is called the

- a. QRS complex b. S-T segment c. P-R interval d. P wave

Chapter 7

88. The process by which the body transforms drugs into an inactive form for elimination by the body is called

- a. decomposition b. metabolism c. excretion d. absorption

89. The most frequently administered antihistamine is

- a. Solu-Cortef b. Solu-Medrol c. Cortisone d. Benadryl

90. Aspirin is classified in the drug category known as

- a. opiod b. analgesic c. antimicrobial d. anticoagulant

91. Betadine is a drug commonly used as a (an)

- a. opiod b. adrenergic c. antimicrobial d. anticoagulant

92. Heparin is a commonly used

- a. anticoagulant b. vasodilator c. vasoconstrictor d. adrenergic

93. Epinephrine (Adrenalin) is in the drug category known as a (an)

- a. anticoagulant b. vasodilator c. adrenergic d. analgesic

94. Morphine is a drug commonly used as a (an)

- a. adrenergic b. opiod c. anticoagulant d. analgesic

95. Diazepam (Valium) is in the family of drugs commonly called

- a. tranquilizers b. adrenergics c. anticoagulants d. vasodilators

96. The parenteral route that offers the most immediate results in terms of effect is

- a. intramuscular b. subcutaneous c. intravenous d. intradermal

97. The standard IV infusion rate for most patients is ____ to ____ drops per minute.

- a. 15/20 b. 20/30 c. 30/40 d. 60/80

Chapter 8

98. Victims of massive trauma have a greater chance of recovery if stabilized within ____ hour(s) after the accident.

- a. three b. one c. two d. four

99. The most common cause of death for individuals under 40 years of age is

- a. drug overdose b. infection c. misdiagnosis d. trauma

100. The recommended antiseizure agent found on emergency carts is

- a. sodium bicarbonate b. Glucagon c. diazepam (Valium) d. atropine

101. The recommended oxygen flow rate for many patients is _____ to _____ liters per minute.

- a.** $1/6$ **b.** $4/6$ **c.** $6/8$ **d.** $10/12$

102. When a patient becomes unconscious, the first response by the radiographer is to

- a. call 9-1-1 b. “shake and shout” c. administer drugs d. check pulse

103. Using the Glasgow Coma Scale, patients who can obey commands will be given a score of

- a. 4 b. 2 c. 6 d. 3

104. An intermediate reaction to contrast medium administration is

- a. warmth b. urticaria (hives) c. coughing d. vomiting

105. Food or liquids with high sugar content should be given to patients who are experiencing

- a. insulin reaction b. diabetic coma c. diabetic shock d. hyperglycemia

Chapter 9

106. An upper GI study, flat plate of the abdomen, oral cholecystogram (gallbladder) and IVP are ordered on a patient. Which radiographic study should be performed first?

- a. upper GI b. IVP c. oral cholecystogram d. flat plate of abdomen

107. The contrast medium of choice when rupture of the gastrointestinal tract is suspected is

- a. thin barium sulfate b. air c. Gastrografin d. thick barium sulfate

108. The drug _____ can be administered during an examination of the GI tract to reduce cramping.

- a. Glucagon b. Oragrafin c. MD-Gastroview d. Telepaque

109. Barium filled enema bags should be suspended _____ to _____ inches above the table.

- a. 36/40 b. 24/30 c. 40/44 d. 36/44

110. When 2 mg (2 units) of glucagon is administered IV, the duration of its effect will be

- a. 9-17 minutes c. 22-25 minutes
b. 12-27 minutes d. 21-32 minutes

Chapter 10

111. The element iodine is ideally suited as a contrast medium because it possesses a

- a. low atomic number
b. loosely packed atoms
c. low atomic weight
d. high atomic weight

112. The contrast medium used in cholecystography is
- a. Omnipaque
 - b. Oragrafin
 - c. Ethiodol
 - d. Pantopaque
113. The contrast medium used in performing a myelogram is
- a. Omnipaque
 - b. Oragrafin
 - c. Ethiodol
 - d. Cystografin
114. The contrast medium used in evaluating the lymphatic system is called
- a. Omnipaque
 - b. Oragrafin
 - c. Ethiodol
 - d. Pantopaque
115. The radiographic study of the common bile duct that requires a fiberoptic examination is called a
- a. percutaneous transhepatic cholangiogram
 - b. endoscopic retrograde cholangiopancreatogram
 - c. T-tube cholangiogram
 - d. surgical cholangiogram

Chapter 11

116. The function of a Salem-Sump tube is to
- a. remove fluid from the chest
 - b. check for bladder rupture
 - c. re-inflate a collapsed lung
 - d. remove gastric contents
117. A Swan-Ganz catheter is inserted into a patient to
- a. measure cardiac output
 - b. evaluate aortic blood flow
 - c. measure chest drainage
 - d. evaluate venous gases
118. The tip of a PICC line lies in the
- a. aorta
 - b. pulmonary vein
 - c. right atrium
 - d. superior vena cava
119. A pacemaker lead is implanted into the
- a. aorta
 - b. apex of right ventricle
 - c. right atrium
 - d. left atrium

Chapter 12

120. The special imaging modality utilized for tumor treatment and vein occlusion is called
- a. digital subtraction angiography
 - b. nuclear scanning
 - c. magnetic resonance spectroscopy
 - d. radiofrequency ablation
121. Computer manipulation of demonstrated arteries and veins can be accomplished by using
- a. digital subtraction angiography
 - b. nuclear scanning
 - c. magnetic resonance spectroscopy
 - d. radiofrequency ablation

122. The special imaging modality utilized to demonstrate specific chemicals in a volume of tissue is

- a. digital subtraction angiography
- b. nuclear scanning
- c. magnetic resonance spectroscopy
- d. radiofrequency ablation

123. The special imaging modality that utilizes contrast agents containing microscopic bubbles for cardiac imaging is called

- a. digital subtraction angiography
- b. nuclear scanning
- c. radiofrequency ablation
- d. diagnostic medical sonography

124. The special modality that utilizes radioactive-tagged tracer molecules for heart and brain imaging is

- a. digital subtraction angiography
- b. single photon emission computed tomography
- c. cardiac catheterization
- d. magnetic resonance spectroscopy



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**Answer Sheet for: Unit 40: Patient Care in Radiography by Ruth Ann Ehrlich, Ellen Doble
 McCloskey & Joan A. Daly**

**Please place your lettered selection for each question in the respective box and return
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1.	11.	21.	31.	41.	51.	61.
2.	12.	22.	32.	42.	52.	62.
3.	13.	23.	33.	43.	53.	63.
4.	14.	24.	34.	44.	54.	64.
5.	15.	25.	35.	45.	55.	65.
6.	16.	26.	36.	46.	56.	66.
7.	17.	27.	37.	47.	57.	67.
8.	18.	28.	38.	48.	58.	68.
9.	19.	29.	39.	49.	59.	69.
10.	20.	30.	40.	50.	60.	70.

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71.	81.	91.	101.	111.	121.
72.	82.	92.	102.	112.	122.
73.	83.	93.	103.	113.	123.
74.	84.	94.	104.	114.	124.
75.	85.	95.	105.	115.	
76.	86.	96.	106.	116.	
77.	87.	97.	107.	117.	
78.	88.	98.	108.	118.	
79.	89.	99.	109.	119.	
80.	90.	100.	110.	120.	