LESSON 1: FLUOROSCOPIC AND SPECIAL RADIOGRAPHIC EQUIPMENT

1. The National Committee on Radiation Protection and Measurements specify that the tube-tabletop distance will be not less than:
   A 15 inches  B 20 inches  C 5 inches  D 25 inches

2. A diagnostic-type protective tube housing will be used with equivalent of ——— mm lead.
   A 1.5  B 0.8  C 2.0  D 2.5

3. The dose rate measured in the CR at tabletop will not exceed ——— roentgens per minute (R/min) for fluoroscopic equipment with AEC.
   A 10  B 2  C 7  D 5

4. The serial film changer is mostly obsolete due to the use of:
   A excessive energy use  B digital radiology systems  C oscillating grids  D focusing electrodes

5. Videotape recording offers ——— radiation dose to the patient over (as) cine recording.
   A the same  B a much higher  C a slightly higher  D a lower

6. The major disadvantage of cine over videotape is that ——— is somewhat compromised.
   A resolution  B processing quality  C instant playback  D tape reusability

7. Image intensification relates to a method of producing fluoroscopic images characterized by a high level of:
   A resolution  B contrast  C brightness  D magnification

8. ——— is determined by the ratio of the input phosphor to the output phosphor.
   A Minification  B Magnification  C Phosphorization  D Quantum mottling

9. Image intensifiers are rated at 5, 8, 9, and 11 inches, which relates to the:
   A input phosphor circumference  B input phosphor radius  C field size covered  D input phosphor diameter

10. An efficient magnification and viewing system should enlarge the part to approximately:
    A 3 times life size  B 4 times life size  C life size or greater  D 2 times life size

11. Kilovoltages ranging from ——— to 120 kVp at an x-ray current of 1/2 to 2 mA are commonly used.
    A 50  B 70  C 90  D 110

12. Density equalization filters are called compensating filters, wedge filters, differential-absorption filters, supplementary filters, or:
    A balancing filters  B teeter-totter filters  C distortion filters  D slide filters

13. Contrast media that increase photon absorption are termed ——— (positive) contrast media.
    A radiolucent  B radiotranscendent  C radiopaque  D radiolene

14. Iodine and barium in their natural states are poisons.
    A True  B False

15. Contrast media that contains iodine as needed for opacity but contains no positive-charged ions is called ——— contrast.
    A non-ionic  B negative  C reverse  D retrograde
16. Retrografin is essentially Renografin with neomycin, a(n) ———, added.
   A diuretic         B preservative   C thinning agent     D antibiotic

17. Contrast media reactions seem to be different, but symptoms are so similar that they are generally thought of as a variety of anaphylaxis.
   A True            B False

18. ——— refers to the characteristics of blood action or flow.
   A Hemokinesiology  B Hemomomentum   C Hemoshift       D Hemodynamics

19. The Reuben (———) bag (a device for pumping air into the patient’s lungs) or an oxygen bottle and mask aids the patient's respiration.
   A NG            B Ambu         C Airbubble      D Gasrite

20. With a contrast media reaction, your first response should be to call a doctor, preferably the physician who:
   A is a lung specialist  B is an ENT     C made the injection  D serves as chief-of-staff

21. No metal should be allowed to come in contact with a radiopaque media that is:
   A iodinated       B radiopaque     C ionized     D radiolucent

22. Oxygen, carbon dioxide, and room air, used in contrast media, are classified as:
   A radiopaque    B radiolucent     C viscous     D highly irritating

23. A drug reaction classed as hemodynamic could result in:
   A renal shutdown  B myocardial infarction  C systemic shock  D A, B, and C are correct

   LESSON 2: DIGESTIVE AND UROGENITAL SYSTEMS

24. The esophagus lies immediately posterior to the trachea. It penetrates the diaphragm and enters the stomach by way of the:
   A splenic orifice  B pulmonary orifice  C cardiac orifice  D esophagus orifice

25. If perforation is suspected (for an esophagus study), an alternate non-barium sulfate radiopaque should be substituted.
   A True          B False

26. During a fluoroscopic exam of the esophagus, the patient ingests the contrast medium and controls his respiration as directed by the:
   A technologist  B radiologist   C attending physician  D nurse

27. In an esophageal study, an ——— is almost always included. Other radiographs may consist of AP and lateral projections.
   A RAO          B RPO         C LPO          D LAO

28. Regarding an RAO of the esophagus, the patient may be in the upright or recumbent position — rotated:
   A 5°          B 15°         C 30°          D 40°

29. For an upper GI series, the patient should have nothing by mouth for a period of ——— hours prior to the time of the examination.
   A 8-12       B 2-3       C 24          D 5-7

30. ——— ounces total volume per patient is usually required during fluoroscopic filling for the upper GI series.
   A 3 to 5      B 8 to 16     C 7 to 10     D 20 to 25

31. For a PA to show the stomach and duodenum in the upper GI series, the iliac crests should be ——— inches below the center of the film.
   A 2            B 7           C 10           D 5
32. For suspected diaphragmatic hernia, tilt the patient ——— head down and make an exposure with suspended inspiration.
A 15º  B 5º  C 45º  D 25º

33. For the barium enema, the introduction of the contrast media into the colon is based on a double contrast consisting of barium:
A and sodium sulfate  B and water  C and air  D and gastrografin

34. After completion of the fluoroscopic phase of the barium enema, PA and AP projections are made using a ——— CR.
A 15º caudal  B 45º cephalad  C 25º caudal  D vertical

35. As in question 34 above, PA or AP projections are usually made with the patient in the right and left lateral decubitus positions using a:
A horizontal CR  B 25º caudal CR  C 45º cephalad CR  D 15º caudal CR

36. Routine views of the barium enema include all the following except:
A PA or AP  B lateral rectum  C tangential of splenic flexure  D AP axial

37. In a fluoro exam the radiologist will perform a preliminary screening - usually done with the patient in the recumbent position.
A True  B False

38. In a barium enema, filling the bowel at a slower rate can be controlled by ——— the enema bag or by pinching the tubing.
A squeezing  B shaking  C raising  D lowering

39. For the single-contrast barium enema, a PA projection of the barium-filled colon is obtained using a ———-inch image, lengthwise.
A 10 x 12  B 14 x 17  C 8 x 10  D 11 x 14

40. With a barium enema, a post-evacuation PA projection is usually done using the same procedure as for the pre-evacuation PA.
A True  B False

41. A projection of the sigmoid colon (LPO) is sometimes done with the patient supine, left hip down, right hip and trunk rotated up to:
A 10º to 15º  B 70º to 90º  C 5º to 10º  D 30º to 60º

42. The double-contrast barium enema involves the use of two types of contrast media – radiopaque residual barium and radiolucent:
A gastrografin  B hypaque  C air  D waiter

43. Bile is manufactured by the ——— cells of the liver which extract the necessary constituents from the circulating blood.
A polyhedral  B Kupffer  C hepatic stellate  D macrophage

44. The patient is not allowed to eat fats after ——— before the radiographic study of the gallbladder.
A the noon meal 2 days  B the noon meal the day  C midnight the day  D 7pm the day

45. In cholecystography an LAO is done using a tightly restricted cone field (———) and an 8 to 10-inch film.
A 6 inches  B 2 inches  C 8 inches  D 3 inches

46. In cholecystography the RPO may be done with the patient in either the recumbent or erect position.
A True  B False

47. The cholecystographic series is usually terminated with the final film begin taken ——— after ingestion of a "fatty meal".
A 3 hours  B 5 hours  C 1/2 to 1 hour  D 15 minutes
48. Cholangiography is a procedure for the demonstration of the ______ after the introduction of a contrast medium.
A gall bladder vasculature  B hepatic ducts only  C pancreatic duct  D biliary tract

49. Excretory urography is commonly referred to as retrograde pyelography.
A True  B False

50. In the course of an IVP, the 2nd film is normally taken ______ minutes after injection.
A 30  B 20  C 10  D 2

51. In the course of an IVP, it is recommended that the patient be left unattended:
A for no more than 5 min’s  B for no more than 2 min’s  C for no more than 10 min’s  D at no time

52. The table may be elevated ______ for the ureterogram to demonstrate any kinking of the ureters - among other reasons.
A 35º to 45º  B 5º to 10º  C 20º  D 25º to 30º

53. In cystography a contrast medium in introduced into the bladder in an amount sufficient to distend the bladder:
A 50 to 100 cc  B 200 to 300 cc  C 300 to 400 cc  D 30 to 50 cc

54. With cystograms the right and left posterior-obliques (——— body rotation) are made following the AP projection.
A 25º to 30º  B 45º to 60º  C 15º  D 5º

55. Nephrography is a procedure for the demonstration of the ______ of the kidneys with use of a contrast medium.
A parenchymal structures  B papilla  C major and minor calyx  D medulla

56. Hysterosalpingography is usually scheduled ______ days after menstruation or at a time determined by the gynecologist or radiologist.
A 25 to 27  B 20 to 22  C 1 to 8  D 10 to 15

57. The ______ decubitus position names signify the surface of the body upon which the patient is resting in a recumbent position.
A two  B three  C five  D four

58. A thick-paste barium sulfate mixture is often used in the radiographic study of the:
A esophagus  B small intestine  C stomach  D large intestine

59. High-kilovoltage spot-filming of the barium-filled colon utilizes the ______ kilovoltage level.
A 90-110  B 120-140  C 210-220  D 400 plus

60. The centering point for an AP view of the urinary bladder is:
A one inch above symph. pubis  B crest of ilium  C midway between ASIS / crest  D fifth lumbar vertebra

61. Nephrograms may sometimes result as a side-effect in:
A cholecystography  B operative cholangiography  C angiocardiology  D retrograde pyelography

62. Approximately ______ of carbon dioxide or oxygen is introduced for a pelvic pneumoperitoneogram.
A 2 cc  B 30 cc  C 100 cc  D 500 cc

LESSON 3: RESPIRATORY, CARDIOVASCULAR, AND NERVOUS SYSTEMS

63. ______ is most frequently used to examine and identify masses or other pathology in either the mediastinum or in the lung.
A MRI  B US  C Fluoroscopy  D CT
64. Ultrasound may be used to detect pleural effusion or for guidance when inserting a needle to aspirate the fluid (———).
A pneumonectomy  B mediastinoscopy  C bronchoscopy  D thoracentesis

65. Angiography (or ———) is the radiographic study of the blood channels in portions of the circulatory system.
A venography  B vasography  C phlebography  D capillariography

66. Arteriography is the radiographic examination of the arteries during injection of a radiopaque contrast medium.
A True  B False

67. Venography (or ———) is the radiographic examination of the veins during the injection of a contrast medium.
A phlebography  B vasography  C capillariography  D venography

68. Nephrography is a form of capillariography.
A True  B False

69. Angiocardiography is an examination of the heart and great vessels of the:
A upper abdomen  B neck  C thorax  D peritoneum

70. Cerebral arteriography is also known as arterial:
A pulse volume studies  B encephalography  C lobagrams  D carotid scans

71. Portal venography is the radiographic examination of the venous circulation in the ——— and related blood channels.
A liver  B spleen  C gallbladder  D cecum

72. The ——— allows the examiners to stop the back-flow of contrast once contrast injection has stopped.
A pressure regulator  B stop-gap nodule  C directional valve  D flow switch

73. ——— are a variation on the arteriographic design with a flexible plastic sheath fitted over the needle slightly shorter than the bevel.
A Safety needles  B Winged needles  C Sheath needles  D 24 gauge needles

74. A ——— timing unit can make exposures of 1/1000 to 1/500 second in rapid sequence at predetermined intervals.
A transducer multi-task  B split sensor  C “fire neck”  D thytratronic rapid-recovering

75. In an angiocardiographic examination an 8 x 10-inch film may suffice for an infant, but a ———-inch film would be required for an adult.
A 11 x 14  B 10 x 12  C 12 x 14  D 14 x 17

76. With upper extremity angiographic exams, the ——— is the site most frequently used for injection.
A groin  B medial ankle  C antecubital fossa  D deltoid muscle

77. A patient may be instructed to inhale against the closed glottis (——— maneuver) during certain examinations.
A Ghirelli’s  B Muller’s  C Massinger’s  D Pisa’s

78. Compared with kVp values for similar size chest radiographs, an increase of about ——— percent is necessary for angiocardiography.
A 50  B 15  C 5  D 40

79. Regarding aortography, the translumbar percutaneous method is also known as the ——— method.
A trans-permeable  B subvesicular  C direct  D indirect
80. In utilizing the aortography–retrograde method, it is necessary to locate the femoral artery in the region of ——— triangle.
A Henman’s   B Harrison’s   C Passarella’s   D Scarpa’s

81. The methods of performing portal venography vary principally in the:
A contrast medium introduction   B contrast medium type   C contrast medium volume   D contrast medium salinity

82. In percutaneous splenoportography, the examiner inserts the injection needle in the left midaxillary line in the ——— intercostal space.
A 4th and 5th   B 9th and 10th   C 7th and 8th   D 11th and 12th

83. In cerebral arteriography, The CR is aligned parallel to the glabellomental line and directed to a point midway on line ——— to the tragi.
A 7 cm inferior   B 2 cm inferior   C 2 cm superior   D 7 cm superior

84. With ventriculography a mercury manometer is used to measure the ——— pressure.
A intra-brainstem   B intraventricular   C intracranial   D cerebellar

85. Ventriculo-encephalography is used to demonstrate structures in the ——— that cannot be shown clearly by regular ventriculography.
A medulla oblongata   B pons   C temporal lobe   D posterior fossa

86. Regarding myelography, the ——— test is performed for the determination of possible block in the vertebral canal.
A Queckenstedt   B Marshall   C Hall   D Capes

87. Discography is the radiographic investigation of selected intervertebral fibrocartilages during radiopacification by a contrast medium.
A True   B False

88. The sharpest angiographic needle is:
A plastic sheath type   B Seldinger style   C venipuncture type   D arterial catheter

89. For angiography the CR is usually directed:
A vertically only   B horizontally only   C both vertically and horizontally   D 20° caudad

90. ——— is the usual position of the arm for the start of arteriography of the upper extremity.
A Flexed with hand on abdomen   B Adducted and pronated   C Adducted and supinated   D Abducted and supinated

91. In venography of the upper extremity, the patient initially assumes the ——— position.
A supine   B prone   C sitting   D lateral recumbent

92. In the retrograde method of aortography, the patient initially assumes the ——— position.
A supine   B Fowler   C Trendelenburg   D erect

93. In the Waggoner-Clark position for ventriculography, the coronal plane of the head is angled ——— degrees from the vertical.
A 85 to 90   B 70 to 75   C 45 to 50   D 10 to 15

LESSON 4: SPECIAL RADIOGRAPHIC PROCEDURES

94. Functionally, the female breasts are accessory glands of the ——— system.
A immune   B endocrine   C circulatory   D reproductive

95. Radiographic demonstration of the differences in breast-tissue density requires a ——— x-ray beam.
A soft, homogeneous   B soft, heterogeneous   C hard, heterogeneous   D hard, homogeneous
96. The technical factors used in mammography depend upon several variables, and the kVp should be:
   A 20 to 35  B 10 to 15  C 45 to 55  D 60 to 75

97. The greatest obstacle to overcome in the normal course of pediatric radiography is the adverse effect of motion.
   A True  B False

98. The ——— apparatus ("head sling") may be used to great advantage for head or neck images with the patient in the upright position.
   A Hoffer  B Guested  C Sayre  D Signorelli

99. PA ——— and dorsoplantar feet are commonly employed in bone age studies on children.
   A facial bones  B knees  C elbows  D hands and wrists

100. ——— (multidirectional) systems, as a general rule, produce better tomograms of areas that require maximum blurring.
    A Supradirectional  B Superdirectional  C Hyperdirectional  D Pluridirectional

101. The level or plane of the body section to be examined is known as the focal plane or ——— plane.
     A tertiary  B datum  C central  D basal

102. In orthoradiography, a particular portion of the x-ray beam is used in such a way as to protect a specific dimension of an object in:
     A exactly one-half true size  B exactly one-fourth true size  C true size  D exactly one-third true size

103. The ——— method is useful in that it produces an image that shows the object in its entire length.
     A slit-scanography  B cleft-scanography  C split-breach  D Hamilton

104. The ——— series is used for diagnosing malformations of long bones caused by disease (among other things).
     A omni bone  B long bone  C calcium  D osseous matter

105. An abnormal or exaggerated lateral curvature of the spine is called:
     A spondylosis  B degenerative disc disease  C stenosis  D scoliosis

106. The CR (or projection) does not always have to be horizontal when performing fluid-level radiography.
     A True  B False

107. It is generally advisable to allow an elapse of ——— minutes before performing fluid-level radiography.
     A 5 to 7  B 2 to 4  C 8 to 10  D 10 to 12

108. The practical kVp range for soft-tissue radiography is from:
     A 40 to 70  B 80 to 90  C 100 to 110  D 120 to 125

109. The radiograph should exhibit relatively ——— contrast graduated over the entire image pattern for soft-tissue radiography.
     A low (long-scale)  B low (short-scale)  C high (short-scale)  D high (long-scale)

110. The radiation hazard in portable radiography is potentially greater than the conventional exposure room in the radiology department.
     A True  B False
111. Standing 6 feet from the tube, your exposure would be about ——— of the amount you would receive standing 3 feet from the tube.
A 10 percent  B 75 percent  C 25 percent  D 50 percent

112. Grids (either portable or grid cassettes) should be used for all examinations where SR might pose a problem.
A True  B False

113. The power source in the operating room is located between ——— feet above floor level to provide an added safety factor.
A 7 and 9  B 2 and 3 1/2  C 1 and 2  D 4 and 4 1/2

114. The virginal breast consists primarily of ——— tissue.
A fatty  B muscular  C fibroglandular  D calculus

115. For a mammography study, if the kVp is 25 and the mAs 1600, three views would generate ——— HU.
A 40,000  B 80,000  C 120,000  D 240,000

116. For voltages under 50 kVp, the minimum filtration equivalent is:
A 0.3 mm aluminum equivalent  B 0.5 mm aluminum equivalent  C 1.0 mm aluminum equivalent  D 1.5 mm aluminum equivalent

117. In the craniocaudal breast position, the patient is to put her hand behind her back and:
A Sit up straight  B lean to one side  C Cough  D bend slightly backward

118. Tomography depends upon:
A focusing x-rays  B blurring unwanted structures  C OFD  D SID

119. Amplitude affects the thickness of the section demonstrated on a tomogram. Another factor that controls thickness is:
A OFD  B mAs  C SID  D kVp

120. A particular body section unit is set for a tube amplitude of 24 inches and a rate of 12 inches per second-so the exposure time should be:
A 0.5 seconds  B 1.5 seconds  C 2.0 seconds  D 2.5 seconds
FLUORO-RAD. PROTECTION COURSE POST-TEST ANSWER SHEET

Fill in each blank. There are two options to submit the post-test.

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