Exam questions

1. The unit of measurement for equivalent dose is:
   a) Roentgen
   b) Curie
   c) Becquerel
   d) Sievert
   e) Gray

2. The unit of measurement for absorbed dose is:
   a) Roentgen
   b) Curie
   c) Becquerel
   d) Sievert
   e) Gray

3. Radiographic image quality criteria include:
   a) image contrast
   b) image noise
   c) spatial resolution
   d) patient positioning according to image projection
   e) film dimensions

4. X-ray hardness ratio increases when:
   a) X-ray wavelength increases
   b) X-ray wavelength decreases
   c) exposure time increases
   d) exposure time decreases
   e) the distance between the X-ray tube and the detector is reduced

5. Ultrasound is the name given to sound waves that have frequencies greater than:
   a) 15 kHz
   b) 20000 Hz
   c) 1 MHz
   d) 30 Hz
   e) 100 Hz

6. If the wave frequency increases, the wavelength:
   a) decreases
   b) increases
   c) does not change
   d) changes according to the wave intensity
   e) changes according to the wave amplitude

7. Ultrasound propagation speed is the highest in:
   a) air
   b) water
   c) fat
   d) vacuum
   e) carbon bioxide

8. Sound represents:
   a) an electromagnetic wave
   b) a mechanical acoustic wave
   c) ionizing radiation
   d) an array of photons
   e) an array of gamma rays

9. The most important factor causing ultrasound wave reflections at the interface between tissues represents the difference in:
   a) acoustic impedance
   b) concentration of hydrogen protons
   c) tissue elasticity
   d) distance from body surface
   e) oxygen concentration

10. A pregnant employee should be transferred to work which does not expose her to ionizing radiation:
   a) starting from the day she has declared her pregnancy
   b) when the first signs of pregnancy appear
   c) since the moment of medical confirmation of pregnancy
   d) the time of transfer is flexible and depends on employee desire
   e) there is no need for any change related to her work environment

11. The units of measurement for absorbed dose are:
   a) Gray
   b) Rad
   c) Roentgen
   d) Curie
   e) Becquerel

12. The units for measuring the radioactivity of a radiopharmaceutical are:
   a) Curie
   b) Becquerel
   c) Gray
   d) Sievert
   e) Roentgen

13. Which of the following methods of investigation refer to radiological or medical imaging modalities?
   a) radioscopy
   b) ultrasonography
   c) endoscopy
   d) laparoscopy
   e) scintigraphy

14. Which of the following are electromagnetic waves?
    a) X-rays
    b) Gamma rays
    c) Ultrasound
    d) Radio waves
    e) Infrared waves

15. Which of the following represent ionizing radiation?
    a) X-rays
    b) Gamma rays
    c) Ultrasound
    d) Radio waves
    e) Infrared waves

16. Which of the following imaging modalities use X-rays?
    a) Scintigraphy
    b) Radioscopy
    c) Echo Doppler
    d) Computed tomography
    e) Orthopantomography

17. Which of the following imaging modalities use Gamma-rays?
    a) Scintigraphy
    b) Single Photon Emission Computed Tomography (SPECT)
    c) Computed tomography angiography (CTA)
    d) Radiography
    e) Ultrasonography

18. Which of the following imaging modalities uses radio waves?
    a) Magnetic Resonance Imaging (MRI)
    b) Computed tomography (CT)
    c) Orthopantomography
    d) Ultrasonography
    e) Scintigraphy

19. Which of the following imaging modalities use ultrasound?
    a) Two-dimensional ultrasound (B-Mode)
    b) Magnetic Resonance Imaging (MRI)
    c) Cone-beam computed tomography (CBCT)
    d) Echo-Doppler
    e) Sialography

20. Which of the following imaging modalities use contrast agents?
    a) Orthopantomography
    b) Sialography
    c) Angiography
    d) Scintigraphy
    e) Positron emission tomography (PET)

21. Which of the following represents a source of X-rays in medical imaging?
    a) Piezoelectric crystal
    b) X-ray tube
    c) Radionuclide
    d) Magnet
    e) Human body

22. Which of the following represents a source of gamma rays in medical imaging?
    a) Piezoelectric crystal
    b) X-ray tube
    c) Radionuclide
    d) Magnet
    e) Human body

23. Which of the following represents a source of ultrasound waves in medical imaging?
    a) Piezoelectric crystal
    b) X-ray tube
    c) Radionuclide
    d) Magnet
    e) Human body

24. Which of the following represents a source of radio waves (radiofrequency pulses) in medical imaging?
    a) Piezoelectric crystal
    b) X-ray tube
    c) Radionuclide
    d) Radio frequency coils / antenna (in magnetic resonance imaging)
    e) Human body

25. Which of the following are radionegative contrast media?
    a) Barium sulfate
    b) Air
    c) Radiopharmaceuticals
    d) Carbon dioxide
    e) Gadolinium

26. Which of the following are radiopositive contrast media?
    a) Barium sulfate
    b) Iodinated contrast agents
    c) Radiopharmaceuticals
    d) Carbon dioxide
    e) Gas microbubbles

27. X-ray absorption depends on:
    a) Structure elasticity
    b) Structure density
    c) Structure localization
    d) Structure thickness
    e) The quantity of hydrogen protons in the tissue

28. Linear tomography represents:
    a) Imaging a single plane (anatomical slice) of a body region in a certain projection
    b) The 3-dimensional reconstruction of an organ
    c) The planar summary image of an anatomical region of the body
    d) The 3-dimensional reconstruction of the whole body
    e) Imaging body sections using endoscopy

29. Which of the following imaging modalities are using tomographic techniques of image acquisition or reconstruction?
    a) Orthopantomography
    b) Magnetic Resonance Imaging (MRI)
    c) Cone beam computed tomography (CBCT)
    d) Conventional radiography
    e) Sialography

30. The structures with high density on radiographic images are called:
    a) opaque
    b) hyperechoic
    c) transparent
    d) hyperdense
    e) hyperintense

31. The structures with low density on radiographic images are called:
    a) opaque
    b) hypodense
    c) hypointense
    d) hyperlucent
    e) hypoechoic

32. The structures with high density on computed tomography (CT) are called:
    a) opaque
    b) hyperdense
    c) hypodense
    d) hyperechoic
    e) hyperintense

33. The structures with low density on computed tomography (CT) are called:
    a) hyperlucent
    b) hyperdense
    c) hypodense
    d) hypoechoic
    e) hypointense

34. The structures associated with strong (high degree of) wave reflections on ultrasound imaging are called:
    a) hypoechoic
    b) hyperechoic
    c) hypointense
    d) hyperlucent
    e) hyperdense

35. The structures associated with weak (low degree of) wave reflections on ultrasound imaging are called:
    a) hypoechoic
    b) hyperechoic
    c) hypointense
    d) hyperlucent
    e) hypodense

36. Contraindications for radiological investigation include:
    a) Lactation period
    b) Pregnancy
    c) The presence of metallic foreign bodies in the human body
    d) Obesity
    e) Advanced age of the patient

37. Contraindications for MRI (Magnetic Resonance Imaging) investigation include:
    a) Pregnancy
    b) The presence of metallic foreign bodies in the human body
    c) The presence of skin lesions within the area of investigation
    d) Small age (pediatric patients)
    e) Advanced age (geriatric patients)

38. Contraindications for CT (Computed Tomography) investigation include:
    a) Lactation period
    b) Pregnancy
    c) The presence of metallic foreign bodies in the human body
    d) Advanced age of the patient
    e) Edentulous patients (lacking teeth)

39. Contraindications for Ultrasonography (USG) investigation include:
    a) Lactation period
    b) Pregnancy
    c) The presence of metallic foreign bodies in the human body
    d) Edentulous patients (lacking teeth)
    e) The are no absolute contraindications

40. Sialography is performed using a contrast agent that is:
    a) Radiopositive hydrosoluble
    b) Radiopositive insoluble
    c) Radiopositive liposoluble
    d) Radionegative
    e) A radiopharmaceutical

41. X-ray properties and effects include:
    a) Ionizing effects
    b) Photochemical effects
    c) Luminescent effects
    d) Tissue magnetization effects
    e) Lowering tissue density

42. Which types of ionizing radiations are produced in nuclear reactions (nuclear fusion and fission reactions)?
    a) gamma rays
    b) alpha particles
    c) beta radiation
    d) X-rays
    e) infrared light

43. A radionuclide represents:
    a) a radiopositive contrast agent
    b) a radionegative contrast agent
    c) a radiopharmaceutical
    d) a paramagnetic contrast agent
    e) a radioactive isotop

44. A radiopharmaceutical represents:
    a) a radiopositive contrast media
    b) a radionegative contrast media
    c) complex molecules that have tropism to a particular tissue, marked with a radionuclide
    d) a paramagnetic contrast agent
    e) a substance containing gas microbubbles

45. The units for measuring ionizing radiation according to the International System of Units include:
    a) Becqueral (Bq)
    b) Gray (Gy)
    c) Sievert (Sv)
    d) Rad
    e) Curie (Ci)

46. Doppler investigation is based on:
    a) ultrasound reflection from soft tissue
    b) ultrasound reflection from moving particles
    c) ultrasound absorption in the bones
    d) ultrasound reflection from structures containing air
    e) ultrasound scattering

47. Which of the X-ray properties is directly related to image formation in radioscopy?
    a) the photographic / chemical effect on the X-ray film
    b) the luminescent effect of X-rays
    c) the ionizing effects of X-rays
    d) X-ray spreading in all directions
    e) X-ray spreading with the speed of light

48. Which of the X-ray properties is directly related to image formation in radiography?
    a) the photographic / chemical effect on the X-ray film
    b) the ionizing effects of X-rays
    c) X-ray spreading in all directions
    d) X-ray spreading with the speed of light
    e) X-ray spreading in a vacuum tube

49. Which tissue (organ) is associated with the lowest X-ray absorption?
    a) tooth enamel
    b) dentine
    c) adipose (fat) tissue
    d) bones
    e) muscle tissue

50. Which tissue (organ) is associated with the highest X-ray absorption?
    a) tooth enamel
    b) dentine
    c) adipose (fat) tissue
    d) blood
    e) muscle tissue

51. Radiation protection methods / types include:
    a) physical (mechanical)
    b) chemical
    c) biological
    d) psychological
    e) universal

52. Which of the following statements about dosimetry are correct?
    a) it measures doses of ionizing radiation
    b) it measures doses of ultrasound waves
    c) it represents an integral part of radiation protection
    d) it represents an integral part of magnetic resonance imaging
    e) it aims at estimating the doses of ionizing radiation in a certain area and/or the radiation dose absorbed by the human body

53. On radiographic images an opacity appears in case of:
    a) increased density
    b) decreased density
    c) decreased spatial resolution
    d) increased contrast
    e) decreased contrast

54. Hyperlucency on radiographic images appears in case of:
    a) increased density
    b) decreased density
    c) decreased spatial resolution
    d) increased contrast
    e) decreased contrast

55. Measures directed at radiation protection of patients include:
    a) selecting the lowest radiation dose that yields an adequate image quality
    b) shielding and protecting critical organs such as thyroid gland and gonads
    c) administration of a standard radiation dose for all patients and types of radiological investigations
    d) selecting optimal techniques and imaging projections to avoid repeated investigations
    e) performing the investigation at the patient's own request

56. What are the advantages of Magnetic Resonance Imaging (MRI) investigation?
    a) Better visualization of soft tissue structures
    b) Better visualization of bony structures
    c) Pregnant women can be investigated
    d) Patients with metallic foreign bodies can be investigated
    e) Short duration of the scan

57. What are the disadvantages of MRI (Magnetic Resonance Imaging) investigation?
    a) High radiation dose
    b) Patients with metallic foreign bodies cannot be investigated
    c) Pregnant women cannot be investigated
    d) Long duration of the scan
    e) Absence of ionizing radiation

58. The most informative imaging modality for visualizing cranial bone fractures is:
    a) Skull radiography in 3 projections
    b) CT (Computed Tomography)
    c) MRI (Magnetic Resonance Imaging)
    d) Cerebral angiography
    e) Orthopantomography

59. Advantages of ultrasonography include:
    a) high dose of ionizing radiation
    b) it can be performed in pregnant women
    c) it can be performed in patients with metallic implants
    d) it is highly operator dependent
    e) it is not using ionizing radiation

60. The specific radiographic signs of fracture include:
    a) hyperostosis
    b) osteonecrosis
    c) fracture line
    d) displacement of bone fragments
    e) bone osteoporosis

61. Displacement of fracture segments along the longitudinal axis:
    a) can be related to sliding fracture segments
    b) can be related to interlocked fracture segments
    c) is commonly associated with an elongated extremity
    d) is commonly associated with a shortened extremity
    e) is usually related to the longitudinal migration of the proximal fracture component

62. The earliest term a bone callus can be detected on radiographic images is commonly:
    a) 3 days post fracture
    b) 7 days post fracture
    c) 21 days post fracture
    d) 2 months post fracture
    e) 6 months post fracture

63. Pathological fractures are fractures that occur as a result of:
    a) action of a strong external force
    b) action of a low intensity force over a bone already affected by a pathological process
    c) repetitive action of a low intensity force over a healthy bone
    d) excessive external compression over a healthy bone
    e) a viral infection

64. Stress fractures are fractures that occur as a result of:
    a) action of a strong external force
    b) action of a low intensity force over a bone already affected by a pathological process
    c) bone overuse and repetitive activity of a low intensity force over a healthy bone
    d) firearm injuries
    e) bone viral infections

65. Radiographic features of joint luxation (complete dislocation) include:
    a) total incongruence (absence of joint congruence) of articular surfaces of the affected joint
    b) partial incongruence of articular surfaces of the affected joint
    c) narrowed intra-articular space
    d) irregular, cogwheel intra-articular space
    e) periarticular osteoporosis

66. Radiographic features of joint subluxation (partial dislocation) include:
    a) total incongruence (absence of joint congruence) of articular surfaces of the affected joint
    b) partial incongruence of articular surfaces of the affected joint
    c) asymmetric, wedge-shaped intra-articular space
    d) complete absence of intra-articular space
    e) periarticular osteoporosis

67. The most sensitive modalities for early diagnosis of acute osteomyelitis are:
    a) radiography
    b) computed tomography (CT)
    c) scintigraphy
    d) magnetic resonance imaging (MRI)
    e) ultrasonography (USG)

68. Indirect fractures represent:
    a) fractures that occur at the point of impact or injury
    b) fractures that occur at a point other than the point of impact or injury (some distance away from the point of impact)
    c) fractures resulting from the action of a low intensity force over a bone already affected by a pathological process
    d) fractures resulting from bone overuse and repetitive activity of a low intensity force over a healthy bone
    e) fractures of different bones occurring at the same time

69. Simultaneous fractures represent:
    a) fractures associated with multiple bone fragments
    b) multiple fractures within one single bone
    c) fractures of a bone already affected by a pathological process
    d) bone fractures associated with joint dislocations
    e) fractures of different bones occurring at the same time

70. Which of the following imaging modalities allows the best visualization of bone structures?
    a) computed Tomography (CT)
    b) radiography with contrast
    c) radiography standard (without contrast)
    d) MRI
    e) scintigraphy

71. The fracture line can be:
    a) transverse
    b) longitudinal
    c) spiral
    d) oblique
    e) lateral

72. Radiological report of a bone fracture should include the following information:
    a) fracture line
    b) displacement of bone fragments
    c) fracture age (fresh / old)
    d) fracture location
    e) the cause of the fracture

73. Which of the following statements related to the bone callus are true?
    a) Bone callus formation precedes the appearance of conjunctive (fibrocartilage) callus
    b) Bone callus formation follows the appearance of conjunctive (fibrocartilage) callus
    c) Bone callus is radiographically visible after 1 week
    d) Bone callus is radiographically visible after 3 weeks
    e) Pseudoarthrosis is a normal stage in the process of fracture healing

74. Which of the following statements about the radiological aspects of osteoporosis are true?
    a) the bone loss in osteoporosis affects both trabecular and cortical layers
    b) the affected bones become more transparent on radiography
    c) the affected bones become more opaque on radiography
    d) osteoporosis is commonly associated with periosteal reaction (associated periostitis of the affected bones)
    e) as a result of progressive bone loss, osteoporosis is commonly associated with areas of complete absence of bone tissue

75. The radiological manifestations of tubular bone osteosclerosis include:
    a) radiological changes are related to abnormal hardening of the affected bone and an elevation in bone density
    b) the affected bones become more transparent on radiography
    c) radiological changes are related to bone thinning
    d) the affected bones become more opaque on radiography
    e) the mineral deposition in the affected region does not follow the normal architecture of the bone

76. Osteodestruction refers to:
    a) Demineralization of bone matrix
    b) Bone resorption and its replacement by fibrous tissue
    c) Bone resorption and its replacement by pathological tissue
    d) The process of bone sequestrum formation
    e) Increase of bone matrix mineralization

77. Osteolysis refers to:
    a) Demineralization of bone matrix
    b) Bone resorption and its replacement by fibrous tissue
    c) Bone resorption and its replacement by pathological tissue
    d) The process of bone sequestrum formation
    e) Bone deformation

78. Bone sequestrum formation is usually a result of:
    a) osteodestruction
    b) osteolysis
    c) osteonecrosis
    d) osteoporosis
    e) osteosclerosis

79. Absence of the intra-articular space is a radiological sign of;
    a) arthritis
    b) ankylosis
    c) intra-articular fracture
    d) joint dislocation (luxation)
    e) osteomyelitis

80. Articular surface erosion is usually encountered in:
    a) Arthritis
    b) Osteoporosis
    c) Ankylosis
    d) Osteomyelitis
    e) joint dislocation (luxation)

81. The radiological changes in osteomyelitis include:
    a) Loss of bony trabecular architecture with appearance of irregular transparent areas on the bone background
    b) Periosteal reaction/thickening (periostitis)
    c) Periarticular osteoporosis
    d) Thickening of the cortical layer
    e) Eventual formation of a bone sequestrum in chronic or untreated cases

82. Bone pathology related to changes in bone dimensions include:
    a) hyperostosis
    b) bone atrophy
    c) scoliostosis
    d) osteoporosis
    e) bone destruction

83. Which of the following periosteal changes are suggestive of very aggressive malignant tumors?
    a) acicular (spiculated) periostitis
    b) linear periostitis
    c) periosteal interruption with a raised edge (Codman triangle)
    d) solid periostitis
    e) periosteal reaction with a thick, wavy, dense and uniform appearance

84. Complications of bone fractures include:
    a) pseudarthrosis
    b) osteomyelitis
    c) bone healing in an abnormal position
    d) osteonecrosis
    e) early consolidation

85. Sialography can be better described as:
    a) radiological investigation of the salivary glands with contrast media
    b) radiological investigation of the salivary glands without contrast media
    c) radiological investigation of the parotid glands with contrast media
    d) radiological investigation of the parotid glands without contrast media
    e) panoramic investigation of the oral cavity

86. Common indications for sialography include:
    a) sialadenitis (inflammation of the salivary glands)
    b) traumas of the salivary ducts
    c) sialolithiasis (salivary gland stones)
    d) sialectasis (cystic dilation of the ducts of salivary glands)
    e) strictures of the salivary ducts

87. Intraoral (endo-oral) radiographic techniques are distinguished from the extraoral techniques by:
    a) positioning of the X-ray tube in the oral cavity
    b) orientation of the central X-ray beam directly into the oral cavity through the open mouth
    c) administration of oral contrast agents prior to the investigation
    d) positioning of the patient's oral cavity perpendicular to the X-ray tube
    e) positioning of the X-ray film in the oral cavity

88. Which of the following are intraoral (endo-oral) radiographic techniques?
    a) periapical radiography
    b) interproximal radiography
    c) occlusal radiography
    d) targeted x-ray of the mandible
    e) orthopantomography

89. The first-line imaging modality in suspected odontogenic sinusitis is?
    a) skull radiography in nose-forehead position
    b) skull radiography in nose-chin position with an open mouth
    c) skull radiography in nose-chin position with a closed mouth
    d) lateral skull radiography
    e) orthopantomography

90. Normal radiographic features of maxillary sinuses include:
    a) radiopaque
    b) radio-transparent
    c) containing an air-fluid level
    d) blurred walls
    e) clear walls with well defined contours

91. Which of the following fractures usually involve the orbital wall?
    a) Le Fort I
    b) Le Fort III
    c) mandibular fractures
    d) Le Fort IV
    e) fractures of the zygomatic bone

92. Total (complete) opacification of a maxillary sinus can be usually caused by:
    a) mucocele
    b) hematoma
    c) large fluid-filled cyst
    d) rhinitis
    e) chronic sinusitis in remission phase

93. Partial opacification of a maxillary sinus can be usually caused by:
    a) acute sinusitis
    b) chronic sinusitis in remission phase
    c) chronic sinusitis in acute recurrent phase
    d) rhinitis
    e) alveolar ridge atrophy (atrophy of the alveolar bone)

94. Which of the following are extraoral radiographic techniques?
    a) occlusal radiography
    b) orthopantomography
    c) skull radiography in nose-forehead position
    d) skull radiography in nose-chin position
    e) sialography

95. Special methods of radiological investigations that are used in dental practice include:
    a) orthopantomography
    b) skull radiography in frontal projection (frontal skull radiography)
    c) lateral skull radiography
    d) cone beam computed tomography (CBCT)
    e) sialography

96. Which of the following statements related to periapical radiographs are correct?
    a) are designed to show individual teeth, including the crown, root structures and the tissues around the apices in a certain region
    b) must include the apical regions of the teeth that are being investigated
    c) should include at least 2 mm of the periapical bone
    d) should include more than 4 teeth
    e) should include the apical region of temporomandibular joint

97. Which of the following techniques are commonly used for performing periapical radiography?
    a) the paralleling technique
    b) the bisected angle technique
    c) the panoramic technique
    d) Belot technique
    e) Simpson technique

98. Which of the following statements related to paralleling technique in periapical radiography are correct?
    a) the radiographic film (image receptor) is placed in a holder and positioned in the mouth parallel to the long axis of the tooth under investigation
    b) the radiographic film (image receptor) is placed in a holder and positioned in the mouth parallel to the short axis of the tooth under investigation
    c) the center of the X-ray beam is directed parallel to the radiographic film
    d) the center of the X-ray beam is directed perpendicular to the radiographic film
    e) the periphery of the X-ray beam should be perpendicular to the radiographic film

99. Which of the following statements related to the bisected angle technique in periapical radiography are correct?
    a) the Pythagorean theorem is applied for estimating radiographic film packet positioning
    b) the film packet is positioned as close as possible to the lingual surface of the tooth under investigation
    c) the film packet is positioned as close as possible to the buccal surface of the tooth under investigation
    d) the film packet is positioned as close as possible to the occlusal surface of the tooth under investigation

e) the angle formed between the long axis of the tooth and the long axis of the film packet is assessed and mentally bisected

100. Which of the following techniques are commonly used for performing occlusal radiography?
a) Belot
b) Simpson
c) Dieck
d) Raper
e) Waters

101. Common indications for performing occlusal radiography include:
a) necessity to evaluate more than 4 teeth at a time
b) necessity to evaluate periapical changes
c) detection of dental dystopia
d) detection of submandibular or sublingual salivary gland stones (sialolithiasis)
e) investigation of patients with traumatic injuries of the maxilla or mandible

102. Which intraoral radiographic technique is preferred in children?
a) periapical radiography using the paralleling technique
b) periapical radiography using the bisected angle technique
c) interproximal radiography
d) occlusal radiography
e) a combination of 2 or 3 techniques

103. Common indications for performing periapical radiography include:
a) caries detection and assessment
b) evaluation of the periapical region
c) periodontal disease
d) detection of dystopic teeth
e) intraradicular (root canal) treatment evaluation

104. Common indications for performing interproximal (bite wing) radiography include:
a) evaluation of homonymous teeth
b) detection and determination of depth of caries or other defects of the coronal two-thirds (the crown portion) of opposing teeth
c) detection of interproximal caries
d) detection of dystopic teeth
e) locating and diagnosing fractures, salivary duct stones, and impacted teeth

105. Which of the following are indications for performing periapical radiography?
a) evaluation of dental root morphology
b) is the method of choice for caries detection in children
c) evaluation of apical root canal surgery results
d) diagnosing and locating salivary duct stones
e) endodontic therapy evaluation

106. The principles of computed tomography (CT) include:
   a) linear movement of the X-ray tube along the patient's body
   b) circular movement of the X-ray tube around the patient's body
   c) circular movement of the patient's table around the X-ray tube
   d) image acquisition of a body section
   e) image acquisition by a Gamma camera

107. Common radiological signs in odontogenic maxillary sinusitis include:
   a) periapical changes of the affected tooth causing the sinus infection
   b) maxillary sinus opacification
   c) local resorption of alveolar bone separating dental root from maxillary sinus
   d) unaffected alveolar bone separating dental root from maxillary sinus
   e) normal transparency of the affected maxillary sinus

108. Which of the following situations present difficulties for performing periapical radiography?
   a) the need to evaluate the mandibular 3rd molar
   b) excessive vomiting reflex of the patient
   c) children and pediatric patients less than 10 years of age
   d) the patient's age between 50-60 years
   e) patients with disabilities

109. Which of the following statements about orthopantomography are correct?
   a) uses a series of periapical radiographs
   b) "ortho" means the central X-ray beam that is perpendicular to the film
   c) "ortho" means the central X-ray beam that is parallel to the film
   d) "pan" means the panoramic technique
   e) "tomo" means section

110. Steps of performing an orthopantomography include:
   a) sitting/standing completely upright
   b) head positioned on a chin rest
   c) bitting down on a radiolucent bite block
   d) positioning the patient's forehead on a radiolucent bite block
   e) positioning the patient in a supine position

111. Which of the following statements related to orthopantomography are true?
   a) the patient remains in a stationary seated or standing position during image acquisition
   b) both the x-ray source and film / detector rotate in combination around the patient
   c) the image acquisition is usually performed following injection of an intravenous contrast agent
   d) the image acquisition is usually performed following administration of an oral contrast agent
   e) the patient is bitting down on a radiolucent bite block

112. Which of the following statements related to orthopantomography images are true?
   a) anatomical structures appear slightly elongated and distorted
   b) anatomical structures correspond entirely to their real dimensions and shape
   c) failure to place the tongue close to the palate may lead to the presence of radiolucent airspace obscuring the roots of the maxillary teeth
   d) image acquisition can be associated with ghost artifacts
   e) ghost artifacts are never encountered in orthopantomography

113. Which of the following statements about orthopantomography images are true?
   a) the soft tissues structures in the imaged area are not visualized
   b) the soft tissues structures in the imaged area are visualized
   c) air and air-filled structures in the imaged area are not visualized
   d) air and air-filled structures in the imaged area are visualized
   e) the results of image acquisition in orthopantomography are usually presented as one single image

114. The advantages of cone-beam computed tomography (CBCT) compared to "classic" computed tomography (CT) include:
   a) lower dose of irradiation
   b) higher dose of irradiation
   c) shorter scaning time
   d) compact size of imaging equipment
   e) improved image contrast

115. The disadvantages of cone-beam computed tomography (CBCT) compared to "classic" computed tomography (CT) include:
   a) lower image contrast
   b) more image artifacts
   c) lower image quality
   d) longer scaning time
   e) higher dose of irradiation

116. Common indications for cone-beam computed tomography (CBCT) include:
   a) evaluation of children
   b) evaluation of bone structures in orthodontics
   c) evaluation of bone trauma in patients with head injuries
   d) evaluation of bone structures in oro-maxillofacial surgery
   e) tumor evaluation

117. The main features related to image acquisition in cone-beam computed tomography (CBCT) compared to "classic" computed tomography (CT) include:
   a) the X-rays are divergent, forming a cone
   b) the detector is semicircular, forming a cone
   c) the detector is flat
   d) the are multiple X-ray tubes placed around the patient, forming a cone
   e) the are multiple detectors placed around the patient, forming a cone

118. Which of the following are odontogenic tumors of the head and neck region:
   a) ameloblastoma
   b) odontoma
   c) cementoma
   d) hemangioma
   e) osteoma

119. Which of the following are non-odontogenic tumors of the head and neck region:
   a) ameloblastoma
   b) osteochondroma
   c) cementoma
   d) hemangioma
   e) osteoma

120. Which of the following features are more likely to be encountered in benign oral and maxillofacial tumors?
   a) slow growth
   b) rapid growth
   c) invasion of adjacent tissues
   d) compression of adjacent tissues
   e) resorption of the root of the teeth in the area of tumor growth

121. Which of the following features are more likely to be encountered in malignant oral and maxillofacial tumors?
   a) slow growth
   b) rapid growth
   c) invasion of adjacent tissues
   d) compression of adjacent tissues
   e) large dimensions with irregular borders

122. Radiological features of benign oral and maxillofacial tumors include:
   a) destruction of the alveolar bone, producing the appearance of teeth "floating in space"
   b) resorption of the root of the teeth
   c) regular, well defined margins
   d) irregular, poorly defined borders
   e) acicular periostitis or periosteal disruption with a raised edge (Codman triangle) in the affected bone segment

123. Radiological features of malignant oral and maxillofacial tumors include:
   a) destruction of the alveolar bone, producing the appearance of teeth "floating in space"
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   d) irregular, poorly defined borders
   e) acicular periostitis or periosteal disruption with a raised edge (Codman triangle) in the affected bone segment

124. Imaging features of ameloblastomas include:
   a) most frequent location is the mandible
   b) most frequent location is the maxilla, near the maxillary sinus
   c) clear, well-demarcated borders
   d) commonly present as expansile lesions with a "soap-bubble" or "honeycomb" appearance
   e) unclear, poorly delimited borders

125. The radiological appearance of "soap bubbles" or "honeycombs" is more likely to be encountered in:
   a) ameloblastoma
   b) cementoma
      an odontogenic cyst
   c) complex odontoma
   d) compound odontoma

126. Types of odontogenic cysts include:
   a) radicular cysts
   b) nasopalatine cysts
   c) follicular (dentigerous) cysts
   d) residual cysts
   e) median mandibular cysts

127. Which of the following are generally considered nonodontogenic cysts?
   a) radicular cysts
   b) nasopalatine cysts
   c) follicular (dentigerous) cysts
   d) median mandibular cysts
   e) globulomaxillary cysts

128. Which of the following statements about periapical cysts are correct?
   a) usually result from tooth infection leading to apical periodontitis and periapical granuloma
   b) generally appear as a round- or pear-shaped, unilocular, lucent lesion in the periapical region
   c) generally appear as a round opacity in the periapical region
   d) commonly have clear, well-defined borders
   e) commonly have blurred, poorly defined borders

129. Which of the following statements about follicular (dentigerous) cysts are correct?
   a) generally, there is no communication between the cyst's cavity and periodontal space
   b) in most cases the cysts communicate with the periodontal space
   c) may contain tooth material or tooth-like structures
   d) are commonly associated with the crown of an unerupted (or partially erupted) tooth
   e) usually result from tooth infection leading to apical periodontitis and periapical granuloma

130. Which of the following statements about non-odontogenic cysts are correct?
   a) frequently develop from the midline of the maxilla or mandible
   b) usually result from tooth infection leading to apical periodontitis and periapical granuloma
   c) are commonly associated with the crown of an unerupted (or partially erupted) tooth
   d) may develop at the sites of bone foramina and fissures
   e) cysts arising from the ductal epithelium of the incisive canal (nasopalatine duct) may appear “heart-shaped” on radiographic images when the anterior nasal spine is superimposed

131. Which of the following statements related to the differential diagnosis of periapical cysts and periapical granulomas is true?
   a) periapical granuloma is a relatively small lucent lesion with ill-defined borders, whereas a periapical cyst is typically larger
   b) periapical granulomas usually have a diameter larger than 1 cm
   c) periapical cysts usually communicate with the periodontal space
   d) periapical cysts are radiolucent, while granulomas are radiopaque
   e) periapical cysts are radiopaque, while granulomas are radiolucent

132. Which of the following structures appears most radiopaque on radiographic images?
   a) enamel
   b) dentine
   c) alveolar bone
   d) pulp chamber
   e) lamina dura (i.e. compact bone that lies adjacent to the periodontal ligament and surrounds the tooth socket)

133. A cyst can be best characterized as:
   a) a sac-like pocket or pathological cavity that contains fluid, air, or other substances and is covered by a thin epithelial layer
   b) a sac-like pocket or pathological cavity that contains fluid, air, or other substances, but lacks an epithelial outer layer
   c) a pathological cavity containing fluid, semisolid material or gas
   d) a pathological cavity that developed following local pus accumulation in the tissues
   e) a normal cavity encountered in certain anatomical regions

134. The most common locations of cysts include:
   a) the angle of the mandible (gonial angle)
   b) the third molar areas in the maxilla
   c) the canine areas
   d) maxillary sinuses
   e) the incisive foramen

135. Macrodontia can be best described as:
   a) an increased number of teeth on a dental arch
   b) enlargement of one or several teeth with preserved tooth morphology
   c) dental root thickening
   d) enlarged pulp chamber associated with apical displacement of the pulpal floor and shortened dental roots
   e) a condition in which one or more teeth appear smaller than normal.

136. Microdontia can be best described as:
   a) a reduced number of teeth on a dental arch
   b) reduction in size of one or several teeth with preserved tooth morphology
   c) enlarged pulp chamber associated with apical displacement of the pulpal floor and shortened dental roots
   d) reduced pulp chamber associated with elongated dental roots
   e) complete absence of all teeth on a dental arch

137. Oligodontia can be best described as:
   a) congenital absence of more than six teeth
   b) complete congenital absence of all teeth on a dental arch
   c) total or partial edentation in elderly patients
   d) congenital absence of 1 or 2 teeth on a dental arch
   e) hypoplasia of dental roots

138. Anodontia can be best described as:
   a) congenital absence of all primary or permanent teeth
   b) congenital absence of at least six teeth
   c) total edentation in elderly patients
   d) congenital absence of 1 or 2 teeth on a dental arch
   e) total edentation after traumatic head injuries

139. An impacted tooth represents:
   a) the bud of a permanent tooth in a child
   b) a tooth that fails to erupt into the dental arch (i.e. that does not break through the gum) within the expected developmental window
   c) a supernumerary tooth
   d) an inclusion into a follicular cyst
   e) a tooth erupted in an abnormal position

140. Tooth dilaceration represents:
   a) tooth eruption on the dental arch
   b) an angulation, or a sharp bend or curve, in the root or crown of a formed tooth
   c) change in the position of two adjacent teeth within the same quadrant
   d) union of two adjacent teeth by forming a common root complex
   e) a tooth that fails to erupt into the dental arch

141. Synodontia represents:
   a) union between dentin and/or enamel of two or more separate developing teeth
   b) tooth eruption on the dental arch
   c) change in the position of two adjacent teeth within the same quadrant
   d) an angulation, or a sharp bend or curve, in the root or crown of a formed tooth
   e) division of a tooth into one or more separate teeth

142. The most important radiological finding for differential diagnosis between periapical cysts and periapical granulomas is:
   a) the size of periapical lucency
   b) dental caries extension
   c) thickening of the lamina dura
   d) periodontal space widening
   e) periodontal space disappearance

143. Which statement about the “burn-out” aftifact is most accurate?
   a) at higher kV values, overpenetration of thinner cervical tooth regions produces radiolucent areas that have rounded, diffuse inner borders, but show intact tooth edges
   b) it has a shape resembling the flames of fire visible in the dental root area and is commonly related to local bone destruction
   c) it is commonly related to an incorrect positioning of the radiological film
   d) it commonly appears as a radiolucent area on the occlusal teeth surface
   e) it commonly appears as a radiopaque area in the pulp chamber region

144. Radiological classification of facial bone fractures include:
   a) traumatic injuries to the teeth and supporting tissues
   b) mandibular fractures
   c) maxillary fractures
   d) fractures of the cervical vertebrae
   e) fractures of the odontoid process

145. Traumatic injuries of teeth and supporting tissues include:
   a) temporomandibular joint (TMJ) dislocations
   b) tooth fractures
   c) traumatic dental dislocation / traumatic dental subluxation
   d) alveolar bone fractures
   e) fractures of the coronoid process

146. Distinct radiological signs of maxillofacial fractures are:
   a) fracture line
   b) displacement of fractured bone fragments
   c) deformation of contours of anatomical bone structures
   d) soft tissue swelling
   e) paranasal sinus opacification

147. The radiographic evaluation of maxillofacial fractures is generally limited by the:
   a) fracture site
   b) degree of displacement of fracture fragments
   c) X-ray beam focus and film positioning in relation to the fracture line
   d) fracture age
   e) degree of damage of adjacent tissues and anatomical structures

148. How many radiographic images are necessary for correct interpretation of dental fractures?
   a) at least 2 images obtained from different angles
   b) at least 3 images obtained from different angles
   c) at least 4 images obtained from different angles
   d) one radiography in frontal projection
   e) an orthopantomography

149. Which of the following imaging investigations can be indicated for diagnosing mandibular fractures?
   a) orthopantomography
   b) computed tomography (CT)
   c) magnetic resonance imaging (MRI)
   d) postero-anterior (frontal) skull radiography
   e) lateral skull radiography

150. According to Le Fort classification, the facial bone fractures are divided into:
   a) 1 type
   b) 2 types
   c) 3 types
   d) 4 types
   e) 5 types

151. Le Fort type I fracture is also called:
   a) lower level horizontal fracture (also known as “floating palate”)
   b) mid level horizontal fracture (also known as pyramidal fracture or “floating maxilla”)
   c) upper level horizontal fracture (also known as transverse fracture or “floating face”)
   d) longitudinal skull fracture
   e) simultaneous skull fracture

152. Le Fort type II fracture is also called:
   a) lower level horizontal fracture (also known as “floating palate”)
   b) mid level horizontal fracture (also known as pyramidal fracture or “floating maxilla”)
   c) upper level horizontal fracture (also known as transverse fracture or “floating face”)
   d) longitudinal skull fracture
   e) simultaneous skull fracture

153. Le Fort type III fracture is also called:
   a) lower level horizontal fracture (also known as “floating palate”)
   b) mid level horizontal fracture (also known as pyramidal fracture or “floating maxilla”)
   c) upper level horizontal fracture (also known as transverse fracture or “floating face”)
   d) longitudinal skull fracture
   e) simultaneous skull fracture

154. In Le Fort fractures type I, the fracture line typically passes through:
   a) hard palate
   b) alveolar ridge of the maxillary bone and related teeth
   c) orbits
   d) lateral walls of maxillary sinuses
   e) alveolar ridge of the mandible and related teeth

155. In Le Fort fractures type II, the fracture line typically passes through:
   a) hard palate
   b) zygomatic arch
   c) alveolar ridge of the mandible and related teeth
   d) maxillary sinus
   e) inferior orbital rim (inferior orbital floor)

156. In Le Fort fractures type III, the fracture line typically passes through:
   a) hard palate
   b) orbital wall
   c) alveolar ridge of the maxillary bone and related teeth
   d) zygomatic arch
   e) alveolar ridge of the mandible and related teeth

157. Relevant radiological investigations that are commonly used for evaluation of suspected Le Fort type I fractures include:
   a) orthopantomography (OPT)
   b) computed tomography (CT)
   c) radiography of nasal bones
   d) postero-anterior (frontal) skull radiography
   e) lateral skull radiography

158. Relevant radiological investigations that are commonly used for evaluation of suspected Le Fort type II fractures include:
   a) orthopantomography (OPT)
   b) computed tomography (CT)
   c) skull radiography in axial (transverse) view
   d) skull radiography in postero-anterior (frontal) view
   e) lateral skull radiography

159. Relevant radiological investigations that are commonly used for evaluation of suspected Le Fort type III fractures include:
   a) orthopantomography (OPT)
   b) computed tomography (CT)
   c) skull radiography in axial (transverse) view
   d) skull radiography in postero-anterior (frontal) view
   e) lateral skull radiography

160. In uncomplicated fractures of the mandible with normal healing of bone fragments, the radiographic control is usually performed:
   a) immediately after immobilization
   b) following 24 hours after immobilization
   c) at 5-7 days post fracture
   d) at 2 weeks post fracture
   e) at 1.5 months post fracture

161. Radiographic images obtained 5-7 days after uncomplicated mandibular fractures commonly show:
   a) widening of the fracture line
   b) the disappearance of the fracture line
   c) regional osteoporosis
   d) blurring of the contour of bone fragments
   e) shapening of the contour of bone fragments, with well-defined cogwheel margins

162. Mandibular fractures most commonly occur at the level of:
   a) mandibular neck
   b) angle of the mandible
   c) body of the mandible at the level of molars and canines
   d) body of the mandible at the level of mandibular symphysis (symphysis menti)
   e) coronoid process

163. Relevant radiologic investigations in suspected mandibular fracture include:
   a) orthopantomography
   b) occlusal radiography
   c) mandibular radiography in lateral oblique projection
   d) radiography in axial projection
   e) periapical radiography

164. Requirements for radiographic investigation of dental trauma include:
   a) obtaining periapical radiographs of the affected region
   b) obtaining radiographic images that include the opposite dental arch
   c) obtaining at least 2 radiographic images with different horizontal angulation
   d) performing posteroanterior skull radiography in forehead-nose position
   e) obtaining interproximal (bite-wing) radiographs

165. The radiological diagnosis of dental fractures is usually most difficult in case of:
   a) a vertical fracture line
   b) a transverse fracture line without displacement of fractured fragments
   c) a transverse fracture line with displacement of fractured fragments
   d) an oblique fracture line
   e) concomitant tooth dislocation

166. Which of the indicated radiological signs is considered relevant in the diagnosis of dental fractures with a vertical (longitudinal) fracture line?
   a) widening of the periodontal ligament space along its entire length
   b) periapical hyperlucency
   c) enlargement of the pulp chamber
   d) deformation of the pulp chamber
   e) narrowing of the periodontal ligament space along its entire length

167. In the late period after mandibular fractures, it is necessary to perform the radiographic investigation of:
   a) temporo-mandibular joint
   b) opposing dental arch
   c) paranasal sinuses
   d) orbits
   e) body of the mandible

168. Which of the listed imaging modalities are relevant for assessment of dental caries?
   a) periapical radiography
   b) interproximal radiography
   c) occlusal radiography
   d) cone beam computed tomography (CBCT)
   e) mandibular radiography in lateral oblique projection

169. Which of the listed imaging modalities are commonly used and considered cost-effective for assessment of occult or hidden dental caries?
   a) retrodentoalveolar radiography
   b) interproximal radiography
   c) orthopantomography
   d) cone beam computed tomography (CBCT)
   e) sialography

170. In which of the listed conditions the radiological diagnosis is most informative?
   a) middle stage dental caries (caries media)
   b) deep dental caries (caries profunda)
   c) incipient dental caries in macular stage (caries incipience)
   d) acute pulpitis
   e) acute periodontitis

171. In which of the listed conditions the radiological diagnosis is most informative?
   a) middle stage dental caries (caries media)
   b) deep dental caries (caries profunda)
   c) incipient dental caries in macular stage (caries incipience)
   d) acute pulpitis
   e) recurrent chronic periodontitis in acute phase

172. Local complications of dental caries include:
   a) pulpitis
   b) pulp necrosis
   c) periapical lesions
   d) osteomyelitis of the maxilla or mandible
   e) infectious endocarditis

173. Regional complications of dental caries include:
   a) osteomyelitis of the maxilla or mandible
   b) odontogenic maxillary sinusitis
   c) infectious endocarditis
   d) periapical granulomas
   e) acute pulpitis

174. On radiographic images, enamel caries usually presents as:
   a) a small cone-shaped groove on the enamel surface with its base towards the periphery
   b) a small protuberance bulding over the enamel surface
   c) widening of the periodontal ligament space
   d) a radiolucent area
   e) a radio-opaque area

175. Distant (systemic) complications of dental caries include:
   a) arthritis
   b) sepsis
   c) infectious endocarditis
   d) periapical abscess
   e) odontogenic maxillary sinusitis

176. In which of the listed conditions the radiological diagnosis is least informative?
   a) acute pulpitis
   b) chronic pulpitis
   c) chronic periodontitis
   d) periapical abscess
   e) periapical granuloma

177. The radiographic signs encountered in periapical inflammation include:
   a) widening of periapical space
   b) destruction of the lamina dura
   c) destruction of adjacent alveolar bone
   d) appearance of a radiolucent area in the dental crown
   e) opacification of the maxillary sinus

178. The main radiographic feature for differentiating the penetration of a dental root into the maxillary sinus and the superimposition of dental root shadow over the sinus is:
   a) integrity of lamina dura
   b) number of roots of the penetrating tooth
   c) opacification of the affected maxillary sinus
   d) presence of tooth caries
   e) the structure of the adjacent alveolar bone

179. Radiographic features suggestive of post-therapy changes of interproximal caries with radiolucent filling material that are helpful for differentiation from untreated or new caries cavities include:
   a) well-defined regular borders
   b) irregular poorly defined borders
   c) preserved shape of dental crown with relatively symmetric contours
   d) distorted shape of dental crown with asymmetric contours
   e) crown deformations of the adjacent teeth

180. The purpose of radiographic investigation in dental caries is to assess:
   a) the depth of the caries cavity
   b) the risk of caries development in adjacent teeth
   c) treatment quality and results
   d) the presence of local complications
   e) the presence of distant (systemic) complications

181. Radiographic signs worrisome for pulpitis include:
   a) deep carious cavity communicating with the pulp chamber
   b) superficial carious cavity
   c) changes of the periodontal space at the site of radicular furcation in multiradicular teeth
   d) apical periodontal changes
   e) unremarkable periodontal space with no distinct periodontal abnormalities

182. The radiological sign favoring the diagnosis of chronic gangrenous pulpitis is:
   a) altered translucency in the tooth with hyperlucent intra-radicular space
   b) opacification of the adjacent maxillary sinus
   c) periapical hypercementosis
   d) caries affecting the occlusal surface of the tooth
   e) thickening of adjacent alveolar bone

183. Radiological signs favoring chronic pulpitis include:
   a) volume reduction of the pulp chamber
   b) root canal narrowing
   c) radio-opaque inclusions in the pulp chamber and root canal
   d) formation of "internal granuloma" (intradental hard tissue resorption, adjacent to the pulp chamber)
   e) periodontal space widening

184. Radiological signs favoring the diagnosis of periapical abscess include:
   a) erosion of the cortical layer of the alveolar bone of the affected tooth
   b) unaffected cortical layer of the adjacent alveolar bone
   c) widening of the periodontal space
   d) periapical radiolucency with blurred, poorly defined borders
   e) periapical radiolucency with clear well-defined borders

185. Indicate the types of teleradiography used in dental practice:
   a) axial
   b) frontal
   c) sagittal
   d) lateral
   e) oblique

186. Anatomical structures of temporo-mandibular joint include:
   a) articular tubercle (eminentia articularis)
   b) mandibular (glenoid) fossa
   c) mandibular condyle
   d) articular disc
   e) ramus of the mandible

187. Anatomical structures of dental crown include:
   a) enamel
   b) dentine
   c) cementum
   d) pulp chamber
   e) apex

188. Anatomical structures of dental root include:
   a) enamel
   b) dentine
   c) cementum
   d) root canal
   e) apex

189. Which of the following statements are correct?
   a) Enamel is the most radio-opaque structure
   b) Cement is the most radio-opaque structure
   c) Dentine is more radio-opaque than enamel
   d) Dentin is less radio-opaque than enamel
   e) Dentine density is relatively similar to bone density

190. Component structures of teeth include:
   a) enamel
   b) dentine
   c) cementum
   d) periodontium
   e) bone matrix

191. List the tooth supporting structures:
   a) periodontal ligament
   b) dental apex
   c) lamina dura
   d) dura mater
   e) alveolar process (alveolar crest)

192. The tooth supporting structures include:
   a) lamina dura
   b) alveolar process (alveolar crest)
   c) crista galli
   d) alveolar bone
   e) periodontal ligament

193. The radiological sign suggestive of chronic granulomatous periodontitis is:
   a) widening of periodontal space in the periapical region
   b) widening of periodontal space adjacent to dental neck region
   c) widening of periodontal space with uneven and fuzzy contours in the form of "tongues of flame" in the periapical region
   d) appearance of a round defect in the periapical region
   e) appearance of a round defect in the furcation area of multiradicular teeth

194. The radiological sign that is most suggestive of periapical granuloma is:
   a) widening of periodontal space in the periapical region
   b) widening of periodontal space adjacent to dental neck region
   c) widening of periodontal space with uneven and fuzzy contours in the form of "tongues of flame" in the region of dental apex
   d) appearance of a round well-defined lucent lesion in the periapical region
   e) appearance of a round defect in the furcation area of multiradicular teeth

195. The radiological sign suggestive of chronic fibrous periodontitis is:
   a) widening of periodontal space in the periapical region
   b) widening of periodontal space adjacent to dental neck region
   c) widening of periodontal space with uneven and fuzzy contours in the form of "tongues of flame" in the periapical region
   d) appearance of a round defect in the periapical region
   e) appearance of a round defect in the furcation area of multiradicular teeth

196. Periodontal ligament space widening is most commonly seen in patients with:
   a) chronic fibrous periodontitis
   b) periapical granulomas
   c) chronic granulomatous periodontitis
   d) periapical cysts
   e) acute periodontitis

197. Tooth transposition represents:
   a) change in the position of two adjacent teeth within the same quadrant
   b) tooth eruption before term
   c) bending of the crown of the tooth
   d) tooth eruption from dental arch
   e) tooth eruption in a malocclusion / “subocclusion” position

198. Tooth gemination can be best described as:
   a) the union of two embryologically separate developing teeth
   b) incomplete division of a single tooth bud, typically presenting as an abnormally shaped tooth that seems to be comprised of two teeth (with a cleft in dental crown, but one pulp chamber and root canal)
   c) the process of tooth eruption from dental arch
   d) change in the position of two adjacent teeth within the same quadrant
   e) shortening of the root(s) of a tooth

199. Tooth concrescence can be best described as:
   a) change in the position of two adjacent teeth within the same quadrant
   b) fusion of the entire length of two adjacent teeth (enamel, dentin, and cementum)
   c) union of two adjacent teeth by cementum alone (the cementum overlying the roots of two adjacent teeth joins together, resulting in a common dental root complex)
   d) the separation of a tooth into two teeth
   e) elongation of the pulp chamber

200. Natal / neonatal teeth represent:
   a) teeth that are present above the gumline (have already erupted) at birth or during neonatal period (first month of life)
   b) unerupted teeth
   c) pluriradicular (multi-rooted) incisors
   d) teeth with a curved dental root
   e) teeth with a curved dental crown

201. The most common radiographic sign of incipient periodontal disease is:
   a) presence of periodontal pockets with a width of 3.5 mm
   b) resorption of interdental septum
   c) periodontal space widening
   d) resorption of the tips (crests) of the interdental septum
   e) radiolucency of the affected dental roots

202. The depth of periodontal pockets in moderate periodontitis is about:
   a) 1-2 mm
   b) 3.5-4 mm
   c) 6-7 mm
   d) 1/2 of dental root length
   e) 2/3 of dental root length

203. The depth of periodontal pockets is measured from:
   a) the occlusal surface of the tooth
   b) enamel-cement border
   c) the tip of the preserved interdental septum
   d) pulp horn
   e) entry into the root canal

204. In parodontopathies, the radiographic investigation provides information related to:
   a) the state of interdental septum and alveolar crest
   b) the width of the desmodontal space
   c) extension of the alveolysis process
   d) alveolysis features and characteristics
   e) the condition of the gingival mucosa

205. Which of the listed imaging modalities are considered relevant in the diagnosis and evaluation of paradontal abnormalities?
   a) ortopantomography
   b) periapical radiography
   c) bite-wing radiography
   d) teleradiography
   e) cone-beam computed tomography (CBCT)

206. The incipient lesions of paradontal disease include:
   a) marginal halisteresis
   b) marginal triangulation
   c) marginal bone resorption
   d) staircase-shaped bone resorption (“stair-step” sign)
   e) small defects in the interdental septum

207. Indicate the pitfalls of radiological investigations in parodontopathies:
   a) the resorption at the level of radicular furcation can be masked by the dental root
   b) previous dental restorations may prevent the visualization of bone resorption
   c) previous dental restorations improve the visualization of bone resorption
   d) bone loss is usually visible radiologically only at a certain degree of bone demineralization
   e) bone loss is visible radiologically at any degree of bone demineralization

208. Select the correct answers about the periodontal ligament:
   a) its matrix consists of fibrin
   b) its matrix consists of collagen
   c) it appears radiographically as a radiolucent space
   d) it appears radiographically as a radiopaque space
   e) it covers the entire surface of the tooth

209. Select the correct projections and patient positioning for performing teleradiography:
   a) lateral projection with the patient in upright (orthostatic) position
   b) frontal projection with the patient in upright (orthostatic) position
   c) lateral projection with the patient in dorsal decubitus position
   d) frontal projection with the patient in dorsal decubitus position
   e) axial projection with the patient in upright (orthostatic) position

210. Which of the listed statements about teleradiography are correct?
   a) it represents a cephalometric study of the skull used to evaluate the relations of the jaws and teeth as well as the facial profile
   b) it helps to establish or clarify the diagnosis in orthodontics and maxillofacial surgery
   c) it is commonly used to establish the diagnosis of facial bones fractures
   d) it is commonly used for diagnosis and follow-up of tumors of the maxillofacial region
   e) it is used in the diagnosis and evaluation of dental caries

211. Indicate the types of teleradiography:
   a) lateral teleradiography
   b) frontal teleradiography
   c) axial teleradiography
   d) oblique teleradiography
   e) spiral teleradiography

212. Which of the listed statements related to lateral teleradiography are correct?
   a) highlights the developmental abnormalities of the facial skeleton in vertical and sagittal planes
   b) provides information related to the nature, direction and degree of development of bone structures
   c) it is used in the diagnosis and evaluation of dental caries
   d) it is commonly used to establish the diagnosis of facial bones fractures
   e) it is commonly used for diagnosis and follow-up of tumors of the maxillofacial region

213. Which of the listed imaging modalities are considered relevant for evaluation of temporo-mandibular joint (TMJ)?
   a) orthopantomography
   b) magnetic resonance imaging (MRI)
   c) computed tomography (CT)
   d) skull radiography in frontal view
   e) lateral skull radiography

214. Which of the listed imaging findings can be detected by imaging investigations of patients with arthritis of the tempororo-mandibular joint (TMJ)?
   a) non-uniform articular space
   b) irregular contour of the affected bone structures
   c) regular contour of the affected bone structures
   d) sclerosis of the affected bone structures
   e) crepitations during movements of the mandible

215. In temporo-mandibular joint dislocation (joint luxation), the imaging investigation reveals:
   a) unchanged articular space without visible abnormalities
   b) uneven / non-uniform articular space
   c) total loss of contact of joint surfaces
   d) partial loss of contact of joint surfaces
   e) crepitations during movements of the mandible

216. Which of the listed imaging modalities are considered relevant for diagnosis and evaluation of temporo-mandibular joint (TMJ) arthritis?
   a) orthopantomography
   b) magnetic resonance imaging (MRI)
   c) computed tomography (CT)
   d) skull radiography in frontal view
   e) lateral skull radiography

217. Which of the listed imaging modalities are considered relevant for diagnosis and evaluation of temporo-mandibular joint dislocation (joint luxation)?
   a) orthopantomography
   b) magnetic resonance imaging (MRI)
   c) computed tomography (CT)
   d) skull radiography in frontal view
   e) lateral skull radiography

218. According to the radiological classification, benign tumors of the jaws and teeth are divided into:
   a) odontogenic tumors
   b) non- odontogenic tumors
   c) mixed tumors
   d) mesenchymal tumors
   e) pseudotumors

219. According to the radiological classification, odontogenic benign tumors of the jaws and teeth include:
   a) ameloblastomas
   b) odontomas
   c) cementomas
   d) osteosarcomas
   e) metastases

220. Which of the following are considered benign non-odontogenic tumors?
   a) osteoma
   b) osteosarcoma
   c) desmoid fibroma
   d) ameloblastoma
   e) cementoma

221. Common radiological features of benign tumors of jaws and teeth include:
   a) presence of one or more space-occupying lesions
   b) regular contours
   c) well-defined borders with clear delimitation from adjacent anatomical structures
   d) non-uniform (heterogeneous) structure
   e) irregular contours

222. Common radiological features of ameloblastoma include:
   a) expansile multilocular round lesions, uneven in size, with well-demarcated borders and regular contour
   b) lesions having “honeycomb” or “soap bubble” appearance
   c) commonly arise from the mandible and less frequently from the maxilla
   d) commonly arise from the maxilla and less frequently from the mandible
   e) multilocular irregular lesions, uneven in size, with poorly-defined borders

223. What are the types of ameloblastomas?
   a) multicystic (multilocular)
   b) unicystic (unilocular)
   c) mesenchymal
   d) mixed
   e) secondary

224. Which of the listed statements related to odontomas are correct?
   a) represent benign tumours linked to tooth development and may arise from regular or supernumerary dental follicles
   b) are relatively common in children
   c) are composed of dental tissue that has grown in an irregular way
   d) have a “honeycomb” or “soap bubble” appearance
   e) radiologically present as multilocular round lacunar lesions that are uneven in size

225. According to their radiological features, odontomas are commonly divided into:
   a) compound odontomas
   b) complex odontomas
   c) mixed form odontomas
   d) secondary odontomas
   e) mesenchymal odontomas

226. The differential radiological diagnosis of cementoma is commonly required with:
   a) cementifying fibroma
   b) ossifying fibroma
   c) ameloblastoma
   d) odontoma
   e) sarcoma

227. Which of the listed statements related to osteogenic exostoses are correct?
   a) can be pediculated
   b) commonly arise on a normal bone segment
   c) commonly arise on a pathological bone segment
   d) are usually associated with local thinning of bone cortex
   e) are associated with local thickening of bone cortex or formation of new bone on the surface of a bone

228. Which of the listed space-occupying lesions represents a pseudotumor?
   a) central reparative granuloma (giant-cell reparative granuloma)
   b) angioma
   c) myxoma
   d) neurinoma
   e) sarcoma

229. Common radiological features of malignant tumors of the jaws and teeth include:
   a) presence of one or more space-occupying lesions
   b) regular contours
   c) well-defined borders with clear delimitation from adjacent anatomical structures
   d) irregular contours
   e) non-uniform (heterogeneous) structure

230. Which of the following are considered malignant odontogenic tumors of the jaws and teeth?
   a) ameloblastoma
   b) odontoma
   c) cementoma
   d) odontogenic carcinoma
   e) ameloblastic sarcoma

231. Which of the listed imaging investigations is the most relevant (informative) in the diagnosis of malignancies of the facial region?
   a) teleradiography
   b) computed tomography (CT) with contrast enhancement
   c) computed tomography (CT) without contrast enhancement
   d) ultrasonography
   e) sialography

232. Common radiological features of malignant tumors on contrast enhanced computed tomography (CECT) include:
   a) contrast enhancement in arterial phase
   b) absence of contrast enhancement in arterial phase
   c) homogeneous structure, regular contours
   d) heterogeneous structure, irregular contours
   e) homogeneous structure, irregular contours

233. Odontogenesis imperfecta is characterized by:
   a) simultaneous dysplasia (deficient formation) of enamel and dentine
   b) dentine dysplasia without affecting enamel
   c) enamel dysplasia without affecting dentine
   d) cement hyperplasia in the periapical region
   e) dental root elongation

234. Imaging signs of dentinogenesis imperfecta (type I and II) include:
   a) narrowed dental neck region (bulbous crowns with apparent cervical constriction)
   b) reduced dental root length with rounded apices
   c) dilated dental crown (bulbous crowns)
   d) dilated pulp chamber
   e) reduced pulp chamber (obliteration of the pulp chamber and root canals due to deposition of dentine)

235. Common features of mandibular fractures (as opposed to maxillary fractures) include:
   a) mandibular fractures are more frequent
   b) mandibular fractures are less frequent
   c) quite frequently have an indirect mechanism (indirect fractures)
   d) double or triple fractures can result when significant force is applied
   e) are always direct fractures

236. Common features of maxillary fractures (as opposed to mandibular fractures) include:
   a) maxillary fractures are more frequent
   b) maxillary fractures are less frequent
   c) predominantly have a direct mechanism of production (direct fractures)
   d) predominantly have an indirect mechanism of production (indirect fractures)
   e) the fracture line quite frequently involves the alveolar process

237. Radiological features of post-traumatic osteomyelitis of the jaws (i.e. maxilla or the mandible) include:
   a) relevant radiological signs can be detected 8-10 days after jaw fracture
   b) relevant radiological signs can be detected within 2-3 days after jaw fracture
   c) the edges of bone fragments appear erased
   d) the fracture line appears widened, with no tendency for narrowing
   e) the fracture line appears narrow and constricting

238. Which of the following conditions can be defined as hypodontia?
   a) congenital absence of 1-2 teeth on the dental arch
   b) complete congenital absence of all teeth
   c) congenital absence of more than 6 teeth
   d) complete edentation in an old patient
   e) complete post-traumatic edentation