

UNIVERSITY OF AGRICULTURE, ABEOKUTA
COLLEGE OF VETERINARY MEDICINE
DEPARTMENT OF VETERINARY MEDICINE & SURGERY

VCS 502: VETERINARY ORTHOPAEDICS AND RADIOLOGY

2009/2010 EXAMINATION

TIME: 2HOURS

ANSWER ALL QUESTIONS IN SECTIONS A & B

SECTION A (60 MARKS)

CIRCLE THE MOST APPROPRIATE OPTION

1. Which of the following is not a cause of musculoskeletal disease in dogs?
(a) Hereditary (b) Trauma (c) Neoplasia (d) Nutrition (e) Exercise
2. The diaphysis of the bone is supplied by which of the following artery/ arteries
(a) Metaphyseal artery (b) Periosteal artery (c) Nutrient artery (d) Both periosteal and nutrient arteries (e) Metaphyseal, periosteal and nutrient arteries
3. Which of the following is used in the management of musculoskeletal disorder?
(a) Analgesic (b) Surgery (c) Exercise (d) Acupuncture (e) All of the above
4. The growth region of the long bone is known as
(a) Physis (b) Epiphysis (c) Metaphysis (d) Diaphysis (e) Epicondyle
5. The ultimate vascular supply of the cortex is
(a) Haversian canal (b) Nutrient artery (c) Canaliculi (d) Periosteal artery (e) Metaphyseal artery
6. Which of the following is an example of an incomplete fracture?
(a) Oblique fracture (b) Comminuted fracture (c) Spiral fracture (d) Green-stick fracture (e) None of the above

7. Which of the following is not a sign of rib fracture?
(a) Pain (b) Difficulty in respiration (c) Hemothorax (d) Hydrothorax (e) Crepitation
8. Which of the following structure is not normally visualized on survey abdominal radiograph?
(a) Pancreas (b) Liver (c) Kidney (d) Stomach (e) Urinary bladder
9. Which of the following contrast technique can be used to diagnosed a bladder tumor
(a) Pneumocystography (b) Cystography (c) Excretory urography (d) Pyelography (e) Urethrography
10. Which of the following is not a roentgen sign of alveoli disease?
(a) Air bronchogram (b) fluffy borders (c) Silhouette sign (d) Lobar distribution (e) None of the above
11. Which of the followings is a differential diagnosis to an alveolar lung pattern with ventral or cranio-ventral distribution?
(a) Viral pneumonia (b) Pulmonary oedema (c) Bacterial pneumonia (d) Pulmonary haemorrhage
(e) Mycotic pneumonia
12. Which of the following is not a differential diagnosis for unstructured interstitial pattern?
(a) Metastatic tumor (b) Viral pneumonia (c) Early pulmonary oedema (d) Pulmonary fibrosis
(e) None of the above
13. The differential diagnosis for pulmonary arterial enlargement with normal pulmonary vein is
(a) Pulmonic stenosis (b) Heartworm infection (c) Babesiosis (d) Anaemia (e) Tetralogy of fallot
14. Unexposed silver halide are removed from radiographic film by
(a) Developer solution (b) Fixer solution (c) X-ray (d) All of the above (e) none of the above
15. The x-ray is produced
(a) In the nucleus (b) outside the nucleus (c) inside the electron (d) inside the proton (e) All of the above
16. Salter Harris classification of fracture is only use for
(a) Diaphyseal fracture (b) Epiphyseal fracture (c) Femoral fracture (d) Humeral fracture (e) All of the above

17. Which of the following is a comminuted fracture?

- (a) A fracture in which the bone is broken into three or more fragments
- (b) A fracture that communicates with the outside
- (c) A Fracture with single fracture line with multiple fragments
- (d) A fracture with multiple fracture lines that meet at a common point
- (e) None of the above

18. Which of the following is applicable to Salter Harris classification of fracture?

- (a) Only used for immature dogs (b) Only used for mature dogs (c) Can be used for both immature and mature dogs (d) All of the above (e) None of the above

19. Salter Harris type III fracture is one in which

- (a) Fracture line runs across the physis
- (b) Fracture line runs from the epiphysis through the physis
- (c) Fracture line runs from the metaphysis through the physis
- (d) Fracture line runs from the epiphysis to the metaphysis
- (e) Fracture line runs from the epiphysis to the diaphysis

20. Which of the following is not an indication for open reduction?

- (a) Intracapsular fracture (b) Delayed union fracture (c) Removal of sequestra (d) Stable Diaphyseal fracture (e) Malunion fracture

21. Which of the following is not true of ideal fixation device?

- (a) Should not allow the movement of joint (b) Should not compromise blood or nerve supply
- (c) Should be well tolerated (d) Should be removable or completely inert (e) None of the above

22. Which of the following is not a metabolic musculoskeletal disorder?

- (a) Nutritional osteodystrophy (b) Osteochondritis (c) Cushion disease (d) Rubber jaw (e) None of the above

23. Which of the following is not a cause of nutritional osteodystrophy?

- (a) Low calcium diet (b) High protein diet (c) Hypovitaminosis D (d) Low protein diet (e) All of the above

24. Which of the following is not an external immobilization device?

(a) Mason Meta splint (b) Aire's cast (c) Gordon extender (d) Kirschner Ehmer splint (e) Robert Jones dressing

25. Which of the following is a limitation to the use of external immobilization device?

(a) Stability of fracture (b) Temperament of the animal (c) Presence of infection (d) All of the above (e) None of the above

26. Plaster of Paris cast is made of

(a) Calcium carbonate dihydrate (b) Calcium sulphate dihydrate (c) Calcium hydroxyapatite (d) calcium hydroxide pentahydrate (e) Calcium silicate monohydrate

27. Which of the following is the frequency range of ultrasound?

(a) 20- 150 hertz (b) 20- 150 megahertz (c) 2-15 kilohertz (d) 20,000 – 150,000 kilohertz
(e) 20,000 – 150,000 hertz

28. Which of the following is a way in which ultrasound interact with matter?

(a) Acoustic enhancement (b) Acoustic shadowing (c) Acoustic impedance (d) Acoustic reverberation (e) None of the above

29. Which of the following is not an ultrasound artifact?

(a) Acoustic shadowing (b) Reverberation (c) Acoustic impedance (d) Mirror image (e) Edge enhancement

30. The image formed by a reflective surface when an ultrasound passes through it will be

(a) Anaechoic (b) Hypoechoic (c) Hyperechoic (d) Homogenous (e) Heterogeneous

31. The sensitivity of the transducer to receive returning echoes is known as

(a) Gain (b) Power (b) Brightness (d) Reflection (e) Total gain compensation

32. An ultrasound display mode in which the returning echoes are represented as Montague's of dots is known as

(a) Amplitude mode (b) Motion mode (c) Doppler mode (d) Brightness mode (e) None of the above

33. Which of the following is not an interfragmentary compression device?

(a) Cortical screw (b) Smille nail (c) Kirschner wire (d) Cerclage wire (e) Tension band wire

34. Which of the following is not a cause of delayed bone union?
(a) Inadequate reduction (b) Infection (c) Vascular impairment (d) Nerve dysfunction (e) Inadequate immobilization
35. The immobilization device of choice for the management of delayed bone union is
(a) Kuntscher nail (b) Smille nail (c) Bone plate (d) Kirschner splint (e) Steinman's pin
36. The immobilization device of choice for the management of bone fracture associated with infection is
(a) Plaster of Paris cast (b) Smille nail (c) Bone plate (d) Kirschner splint (e) Steinman's pin
37. Avascular bone tissue can be stained during management of fracture associated infection using
(a) 50% Hypaque (b) Eosin and Negrosin (c) Wells and Awa (d) Barium sulphate (e) 1% methylene blue
38. The role of the vacuum in the X-ray tube insert is to
(a) Prevent collision between electrons (b) Prevent gas oxidation of cathode filament
(c) Prevent gas oxidation of the anode (d) Ensure passage of the electrons to the anode
(e) All of the above
39. The target of X-ray tube insert is made of
(a) Copper (b) Lead (c) Tungsten (d) Silver (e) Aluminum
40. Which of the following ensure steady flow of cathode rays in one direction?
(a) Direct current (b) Alternating circuit (c) Kilovoltage peak (d) Main circuit (e) Rectification circuit
41. Electrons are produced in the X-ray tube through which of the following process?
(a) Photoelectric emission (b) Thermionic emission (c) Radioactive decay (d) Electromagnetic ionization (e) All of the above
42. Which of the following is not correct?
(a) X-ray have a constant speed (b) The wavelength of X-ray is variable (c) X-ray travels in a straight line (d) X-ray has a constant wavelength (e) X-ray has no electric charge

43. Interaction of X-ray with glass will produce which of the following effects?
(a) Fluorescent effect (b) Electromagnetic effect (c) Thermal effect (d) Ionizing effect (e) All of the above
44. Radiographic contrast is dependent on which of the following?
(a) Subject contrast (b) Film contrast (c) Scatter radiation (d) All of the above (e) none of the above
45. Normal radioluscencies in bone include the following except
(a) Physis (b) Epiphysis (c) Nutrient foramen (d) Nutrient canal (e) All of the above
46. Which of the following can be wrongly diagnosed as a fracture?
(a) Ectopic nutrient foramina (b) Accessory ossification centre (c) Inconstant and multiple sesamoid bones (d) All of the above (e) none of the above
47. Which of the following mineral is not important for musculoskeletal functions?
(a) Calcium (b) Manganese (c) Phosphorus (d) Copper (e) Selenium
48. A transverse wave is one in which
(a) The direction of the wave is parallel to the wavefront (b) The direction of the wave is perpendicular to the wavefront (c) The direction of the wave is transverse to the wavefront
(d) The wave only has a compression phase (e) The wave has both compression and rarefaction
49. The force that drives an electron from the cathode to the anode is known as
(a) Kilovoltage peak (b) Milliamperage (c) Electrostatic attraction (d) Planck's constant (e) None of the above
50. Which of the following structures ensure the stability of the elbow joint?
(a) Coronoid process (b) Olecranon process (c) Anconeal process (d) Collateral ligaments (e) All of the above
51. Which of the following affect the size of the heart radiographically?
(a) Breed of dog (b) Positioning (c) Cycle of the heart (d) Cardiovascular diseases (e) All of the above

52. Film blackness is dependent on which of the following?
(a) Milliampere (b) Kilovoltage peak (c) Focal-film distance (d) None of the above (e) All of the above
53. A bone type that is composed of thin intersecting lamellae is known as
(a) Compact bone (b) Spongy bone (c) Irregular bone (d) Flat bone (e) Lamellae bone
54. Which of the following bones cannot be described as a flat bone?
(a) Scapula (b) patella (c) Pelvic bone (d) Cranium (e) All of the above
55. Which of the following is not a diagnostic imaging technique?
(a) Radiography (b) Ultrasonography (c) Computed Tomography (d) Endoscopy
(e) Radionuclide imaging
56. Which of the following is not a use for diagnostic imaging?
(a) Purchase examination (b) Examination of enlarged coelomic cavity (c) Evaluation of trauma
(d) All of the above (e) None of the above
57. Which of the following is not an aim of fracture management?
(a) Alleviate pain (b) Treat soft tissue damage (c) Restore function (d) Restore length (e) Restore normal anatomical alignment
58. Which of the following is the cause of pain during fracture?
(a) Rubbing of bone against each other (b) Oedema or swelling (c) Role of interleukins (d) All of the above (e) None of the above
59. During abdominal radiography, subject contrast is best seen in which of the following?
(a) Lean animal (b) Fat animal (c) Young animal (d) Old animal (e) All of the above
60. Which of the following is not a negative contrast medium?
(a) Organic iodide (b) Carbondioxide (c) Oxygen (d) Air (e) Nitrous oxide

SECTION B (40 MARKS)

1. A three year old Rottweiler was presented to the Veterinary Teaching Hospital, UNAAB with complaints of progressive non weight bearing hind limb lameness, difficulty to rise or climb. Examination revealed asymmetry of the hind limbs, while antero-posterior radiographs of the hip pelvis showed moderate coxofemoral joint laxity, presence of osteophytes at the dorsal acetabular rim and entesophytes at the femoral neck.

- (a) What is your diagnosis?
- (b) List any two disorders you will consider as differential diagnosis
- (c) Describe how you will manage the condition?

2a. Using well labeled diagrams described the different classes of epiphyseal fractures based on Salter Harris classification

- b. What are the advantages of barium sulphate over organic iodide?
- c. Mention any five advantages ultrasonography has over radiography

3a. Briefly explain the term delayed union and list any five factors that can cause it

- b. Describe how you will manage osteochondritis dissecans of the stifle joint in a Boerboel.
- c. Write a short note on the clinical presentation and management of fracture non-union in a dog

4a. Define the term neuroradiology and with relevant examples, state the indications for neuroradiology in Veterinary Practice

- b. Enumerate the principles of joint surgery and describe the various surgical technique of the elbow joint
- c. List the indications for abdominal ultrasonography