

Name \_\_\_\_\_

## **DODVPR 2016-2017**

### **Mock Exam- Knowledge**

1. Write your name above and on each page of the exam packet.
2. For each question, select the ONE best answer and mark it on the answer sheet.
3. Use capital letters on your answer sheet.
4. Credit will be given only for correct answers recorded on the answer sheet.
5. All questions for which more than one answer is marked will be recorded as incorrect.
6. No credit will be awarded or deducted for incorrect answers.

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1. A ROC curve of a test with 50% sensitivity and 50% specificity would look like:
  - A. A diagonal line from the bottom left to the top right
  - B. A diagonal line from the top left to the bottom right
  - C. A vertical line present at any point on the graph
  - D. A curved line that approaches the top left corner
2. A vaginal swab from a dog contains over 90% superficial, often anucleate, keratinized squamous cells. What stage of the estrus cycle is she in?
  - A. Diestrus
  - B. Estrus
  - C. Proestrus
  - D. Anestrus
3. A major end-product of nitrogen metabolism in birds is:
  - A. blood urea nitrogen (BUN)
  - B. biliverdin
  - C. uric acid
  - D. creatinine
4. Urine entering the distal tubule is \_\_\_\_\_-osmotic compared to plasma.
  - A. Hyper-osmotic
  - B. Iso-osmotic
  - C. Hypo-osmotic
5. The nitroprusside reaction detects which type of molecule(s)?
  - A. glucose
  - B. creatinine
  - C. ketones
  - D. proteins
6. Which of the following contains CD11d positive cells?
  - A. Reactive histiocytosis
  - B. Histiocytic sarcoma
  - C. Langerhans histiocytosis
  - D. Hemophagocytic histiocytic sarcoma
7. As the prevalence of a disease decreases which is likely to occur?
  - A. positive predictive value increases
  - B. negative predictive value increases
  - C. false negatives increase
  - D. false positives decrease
8. If there are fewer than 40 reference individuals available when generating reference intervals (RI), how should the RI be generated?
  - A. mean +/- two standard deviations
  - B. non-parametrically, using the rank-percentile method

- C. parametrically
- D. the highest and lowest values observed

9. The species that can infect platelets of dogs is:

- A. Anaplasma platys
- B. Ehrlichia canis
- C. Ehrlichia ewingii
- D. Anaplasma phagocytophilum

10. A six year old, spayed female, miniature schnauzer has the following blood work:

Analyte	Patient	Reference Interval
glucose	325	65-122 mg/dL
triglycerides	720	130-370 mg/dL
ALP	442	35-280 U/L
Sodium	141	145-158 mEq/L
Chloride	103	106-120 mEq/L

All of the following EXCEPT which may help account for the low sodium and chloride?

- A. osmotic diuresis
- B. extracellular hypertonicity
- C. electrolyte exclusion effect
- D. hypertonic dehydration

11. Hypermagnesemia has been associated with which of the following conditions?

- A. dehydration
- B. hypoparathyroidism
- C. diabetes mellitus
- D. lactation tetany

12. An adult dog has the following CBC data

Analyte	Patient	Reference Interval
HCT	30	37-55 %
MCV	57	60-72 fL
MCHC	30	33-37 g/dL
reticulocytes	60,000	0-60,000 $\times 10^3/uL$

The technologist noted: acanthocytes, schistocytes and leptocytes.

What is the most likely interpretation?

- A. the dog is a poodle
- B. hemangiosarcoma
- C. copper toxicity

D. iron deficiency

13. An adult dog has a normal baseline cortisol concentration and fails to suppress with both the low and high-dose dexamethasone suppression tests. What is the most likely diagnosis?

- A. Normal pituitary-adrenal axis
- B. Pituitary-dependent hyperadrenocorticism
- C. Functional adrenocortical neoplasm
- D. Iatrogenic hyperadrenocorticism

14. Data from a young adult dog.

Analyte	Patient	Reference Interval
BUN	47	7-28 mg/dL
creatinine	2.4	0.9-1.7 mg/dL
sodium	133	145-158 mEq/L
potassium	5.9	4.1-5.5 mEq/L
calcium	13.8	9.0-11.2 mg/dL
USPG	1.020	varies

All of the following, EXCEPT which, are possible explanations for the azotemia and dilute urine?

- A. medullary washout
- B. diuretic (furosemide) administration
- C. nephrogenic diabetes insipidus
- D. oliguric renal failure

15. Diminished annexin-5 binding to platelets, using flow cytometry, is supportive of?

- A. Scott syndrome
- B. Leukocyte adhesion deficiency type III
- C. Chediak-Higashi syndrome
- D. Glanzmann thrombasthenia

16. An adult dog has the following thyroid testing results:

Analyte	Patient	Reference Interval
Total T4	1.2	1.4-4.0 ug/dL
Free T4	1.3	1.2-3.4 ng/dL
TSH	0.2	0.1-0.45

What is the most likely interpretation?

- A. the patient is a small breed dog
- B. anti-T4 autoantibodies are decreasing total T4
- C. hypoproteinemia

D. obesity

17. Data from a 6 year old Arab gelding with a 2 week history of edema and inappetance.

Analyte	Patient	Reference Interval
BUN	91	13-23 mg/dL
creatinine	10.4	0.1-1.7 mg/dL
calcium	15.3	10.4-12.9 mg/dL
total protein	4.7	5.5-6.9 g/dL
albumin	1.8	2.5-3.9 g/dL
globulin	2.9	1.9-3.9 g/dL
HCO <sub>3</sub> <sup>-</sup>	32.1	25-31 mmol/L
Anion gap	9	10-16

Why is the total protein low?

- A. protein-losing enteropathy
- B. hemorrhage
- C. fluid administration (to correct azotemia)
- D. protein-losing nephropathy

18. Data from a 23 year old Thoroughbred gelding that presented for acute onset of ataxia, depression and fever.

Analyte	Patient	Reference Interval
Total bilirubin	7.5	0.3-3.0 mg/dL
Albumin	2.9	2.4-3.8 g/dL
BUN	45	11-26 mg/dL
ALP	231	109-352 U/L
AST	243	190-380 U/L
Ammonia	406	7-49 mmol/L
bile acids	4.9	0-19.0 mmol/L

What is the most likely diagnosis?

- A. Theiler's disease
- B. Urea toxicosis
- C. Equine corona virus infection
- D. Cholelithiasis

19. Laboratory data from a 1 year old Cavalier King Charles Spaniel.

Analyte	Patient	Reference Interval
Platelet count	75,000	164-475 x10 <sup>3</sup> /uL
Mean platelet volume (MPV)	16.8	10-12 fL

Plateletcrit	0.25	0.129-0.403%
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What is the most likely diagnosis?

- A. large platelets suggest recovery from thrombocytopenia is imminent
- B. no abnormalities
- C. macrothrombocytopenia
- D. dysthrombocytopoiesis

20. Lab data from an 8-year-old, male castrated American Pit Bull. His sclera, conjunctiva, mucous membranes and pinna are icteric.

Analyte	Patient	Reference Interval
RBC	1.13	5.5-8.5 x 10 <sup>6</sup> /uL
Hct	9.34	35-52%
Hemoglobin	2.9	12-18 g/dL
Platelets	105	200-450 x 10 <sup>3</sup> /uL
Albumin	1.7	2.5-3.8 g/dL
Total Bilirubin	9.0	0.1-0.3
Cholesterol	113	129-297 mg/dL
ALT	1226	8-65 U/L

Rare siderotic inclusions present in RBCs.

These findings are suggestive of paraneoplastic manifestations of which malignancy?

- A. hemophagocytic histiocytic sarcoma
- B. hemangiosarcoma
- C. hepatocellular carcinoma
- D. myeloid leukemia with rubricytic differentiation

21. Which of the following is likely to be clinically silent?

- A. Factor 8 deficiency
- B. Hageman's syndrome
- C. Factor 9 deficiency
- D. Factor 7 deficiency

22. In which of the following conditions is cobalamin likely to be normal?

- A. exocrine pancreatic insufficiency
- B. bacterial overgrowth
- C. distal small intestinal disease
- D. proximal small intestinal disease

23. Which enzyme deficiency is associated with myelofibrosis?

- A. glucose-6-phosphate dehydrogenase
- B. phosphofructokinase
- C. pyruvate kinase
- D. methemoglobin reductase

24. Rabbits are highly dependent on which organ or system for serum calcium regulation?
- A. kidneys
  - B. small intestine
  - C. cecum
  - D. biliary
25. Hemolytic anemia in owl monkeys has been reversed and prevented by administration of:
- A. Vitamin A
  - B. Vitamin C
  - C. Vitamin D
  - D. Vitamin E
26. Jejunal aspirate & PARR results from a cat. What is the most likely diagnosis?
- A. EATL type 1
  - B. EATL type 2
  - C. IBD
27. Serum protein electrophoresis from a dog. Total protein is 5.0 (5.6-7.6 g/dL), albumin 2.8 (2.8-4.0 g/dL) and globulin 2.2 (2.2-4.1 g/dL). What is the most likely interpretation in this patient?
- A. lymphoma
  - B. non-secretory myeloma
  - C. marked inflammation
28. The MCHC of this patient is likely:
- A. decreased
  - B. normal
  - C. increased
29. Adult dog before (A) and after (C) treatment with methylene blue. In image B, the patient's blood is on the left, a normal control on the right. Which enzyme deficiency could result in these findings?
- A. glucose-6-phosphate
  - B. pyruvate kinase
  - C. methemoglobin reductase
  - D. phosphofructokinase
30. A 4-week-old chick with widespread lymphoid necrosis and pulmonary cryptosporidiosis has likely been infected with:
- A. Avian birnavirus
  - B. Avian bornavirus
  - C. Avian rubulavirus
  - D. Avian circovirus

31. Which of the following is NOT typically associated with *Rhodococcus equi* infection in dogs?
- A. Ulcerative colitis
  - B. Endophthalmitis
  - C. Endocarditis
  - D. Suppurative pleuropneumonia
32. Which of the following is the most significant predictor of recurrence of feline injection-site sarcoma?
- A. Incomplete surgical margins
  - B. Increased expression of MMP-2 and MMP-9
  - C. Increased Ki-67 expression
  - D. Tumor diameter  $\geq 3.75$ cm
33. In a recent study of cats with chronic kidney disease, which of the following was associated with increased severity of tubular degeneration/necrosis, inflammation, fibrosis and glomerulosclerosis?
- A. Azotemia
  - B. Proteinuria
  - C. Hyperphosphatemia
  - D. Hypercalcemia
34. Which of the following is a common concurrent finding in cats with alimentary large cell lymphoma?
- A. Obstructive intestinal pseudotumor
  - B. Eosinophilic sclerosing fibroplasia
  - C. Mucosa-invading bacteria
  - D. DIC
35. Which of the following the most useful sample for microscopic diagnosis of HPAI infection in chickens?
- A. Oral mucosa
  - B. Bursa
  - C. Eye
  - D. Egg
  - E. Feather
36. What is the likely etiology in a red-tailed hawk with pectenitis, choroiditis and retinal necrosis?
- A. *Salmonella enterica* subspecies *arizonae*
  - B. Lead toxicity
  - C. West Nile Virus
  - D. *Diplostomum spathaceum*
37. In cats with oral squamous cell carcinoma, increased expression of which of the following is often associated with increased bone invasion and osteoclastogenesis?

- A. p53
- B. PTHrP
- C. P14
- D. Ki67

38. Which is the most common finding in ferrets infected by ferret systemic coronavirus (FRSCV)?

- A. Fibrinosuppurative serositis
- B. Multisystemic granulomatous inflammation
- C. Lymphohistiocytic phlebitis
- D. Necrotizing enteritis

39. What is the likely cause in a broiler chick with symmetrical hind limb paralysis and spondylitis of the free thoracic vertebra?

- A. *Ochroconis gallopavum*
- B. *Salmonella enterica* subspecies *arizonae*
- C. *Enterococcus cecorum*
- D. Alpha retrovirus
- E. Vitamin A deficiency

40. The 4 main lesions of collie eye anomaly include all except?

- A. Choroidal hypoplasia
- B. Retinal dysplasia
- C. Coloboma
- D. Iris hypoplasia
- E. Intraocular hemorrhage

41. The leading cause of death among canine leishmaniosis patients is:

- A. ulcerative dermatitis
- B. atrophic myositis of masticatory muscles
- C. chronic proteinuric nephritis
- D. Meningoencephalomyelitis

42. All of the following EXCEPT \_\_\_ have been used in dogs to demonstrate clonality?

- A. PCR for antigen receptor gene rearrangement
- B. X-chromosome inactivation pattern (XCIP)
- C. Flow cytometric immunophenotypic assessment
- D. Laser capture microdissection

43. Which of the following is a common sequela to functional pheochromocytoma in a horse?

- A. Hypoglycemia
- B. Hyperlactatemia
- C. Elevated ALP
- D. Elevated ACTH

44. Which of the following causes pulmonary edema & fibrosis in swine?
- A. *Heliotropium* spp.
  - B. *Xanthium* spp.
  - C. *Senecio* spp.
  - D. *Cynoglossum* spp.
45. In cattle, which of the following are highly sensitive to fluorine?
- A. PCT epithelial cells
  - B. Bone marrow
  - C. Ameloblasts
  - D. Intestinal crypt epithelium
46. What is the most likely explanation in an intestine with the following histologic features: extensive epithelial desquamation, red blood cell hemolysis, numerous intravascular bacilli and gas bubbles.
- A. Ischemic necrosis
  - B. Bacterial septicemia
  - C. DIC
  - D. Autolysis
47. A captive golden lion tamarin that is fed “pink” mice and has multifocal, random hepatic necrosis and lymphocytic meningitis has likely been infected with which of the following?
- A. Flavivirus
  - B. Filovirus
  - C. Arenavirus
  - D. Coronavirus
48. Which of the following nematodes is associated with urinary bladder tumors in the rat?
- A. *Schistosoma haematobium*
  - B. *Clonorchis sinensis*
  - C. *Trichosomoides crassicauda*
  - D. *Cysticercus fasciolaris*
49. “Nurse cells” are associated with which of the following?
- A. *Cysticercus cellulosae*
  - B. *Trichinella spiralis*
  - C. *Hepatozoon americanum*
  - D. *Sarcocystis* spp.
50. Which of the following is NOT a lesion seen in swine with hepatosis dietetica?
- A. Massive hepatic necrosis
  - B. Degeneration of skeletal and cardiac muscle
  - C. Serous effusions
  - D. Fibrinoid necrosis of arterioles

- E. Ulceration of the cecal and colonic mucosa
51. Which is true regarding *Chlamydophila abortus* (ovine enzootic abortion) in ewes?
- A. Causes necrotizing placentitis of the cotyledon only with no vasculitis
  - B. Causes targetoid hepatic lesions in fetus
  - C. The elementary body is infectious
  - D. Ewes infected late in gestation abort in the final trimester of pregnancy
52. Which is a toxin from the fungus *Neotyphodium coenophialum* on fescue?
- A. Ergovaline
  - B. Paxilline
  - C. Fumonisin B1
  - D. Lolitrem B
53. The most common lesion of *Yersinia pseudotuberculosis* infection in goats is:
- A. Conjunctivitis
  - B. Enteritis
  - C. Mastitis
  - D. Hepatitis
54. In bovine adenoviral enteritis, viral inclusions are present in:
- A. M cells
  - B. Macrophages
  - C. Endothelial cells
  - D. Crypt enterocytes
55. What is the most likely etiology in a horse with pulmonary edema, gelatinous edema of nuchal ligament and hydropericardium?
- A. Orbivirus
  - B. Henipavirus
  - C. Circovirus
  - D. Picornavirus
56. Encysted *Stephanurus dentatus* is most commonly found where in swine?
- A. Gingiva
  - B. Perirenal fat
  - C. Testicle
  - D. Brain
57. All of the following *except* \_\_\_\_ are toxins associated with anthrax?
- A. protective antigen
  - B. hemolysin
  - C. lethal factor
  - D. edema factor

58. In a recent retrospective study of geriatric chimpanzees, there was a statistically significant association between cardiac fibrosis and:
- A. Cerebral infarcts
  - B. Glomerulosclerosis and renal fibrosis
  - C. Chronic passive hepatic congestion
  - D. Atherosclerosis
59. Which best characterizes the lesion of tungiasis in cattle?
- A. Eosinophilic urocystitis
  - B. Ulcerative enteritis
  - C. Erosive esophagitis
  - D. Proliferative dermatitis
60. Spontaneous, generalized DJD occurs in nearly 100% of aged \_\_\_\_\_.
- A. Mice
  - B. Gerbils
  - C. Guinea pigs
  - D. Rabbits
61. Which of the following mouse strains are blind due to homozygosity of *rd1* allele?
- A. FVB/N
  - B. 129
  - C. BALB/c
  - D. NOD
62. Crystals in mouse acidophilic macrophage pneumonia are composed of all except?
- A. Ym1 chitinase
  - B. lysozyme
  - C. iron
  - D. a1-antitrypsin
63. The microscopic finding in the pig of lymphoplasmacytic and histiocytic interstitial pneumonia with necrotic alveolar macrophages and aggregates of free chromatin is highly suggestive of:
- A. PRRS virus
  - B. PCV-2
  - C. Swine Influenza
  - D. Suid Herpesvirus 1
  - E. *Mycoplasma hyopneumoniae*
64. The incidence of membranoproliferative glomerulonephritis approaches 100% in which mouse strain?
- A. Pkhd<sup>111</sup>
  - B. B6C3F1
  - C. FVB
  - D. NZB

65. In guinea pigs *Klossiella cobayae* schizonts are typically found where?
- A. Hepatocytes
  - B. Erythrocytes
  - C. Macrophages
  - D. Glomerular endothelium
66. What is the likely cause in a rabbit with portal hepatic necrosis, pulmonary hemorrhage and edema, and thrombocytopenia?
- A. Calicivirus
  - B. Ricin toxicity
  - C. Vitamin D toxicity
  - D. *Francisella tularensis*
  - E. Leporid herpesvirus
67. "Brain-heart syndrome" is often observed following acute brain injury and is associated with:
- A. Subvalvular jet lesions
  - B. Subendocardial necrosis
  - C. Necrotizing vasculitis of coronary vessels
  - D. Atrial thrombosis
68. All of the following are associated with chronic cadmium toxicity (Itai-Itai disease) in ovariectomized monkeys except?
- A. Normocytic normochromic anemia
  - B. Hyperphosphatemia
  - C. Decreased serum levels of vitamin D3
  - D. Renal tubular atrophy with fibrosis
  - E. Osteomalacic osteopenia
69. Which of the following is the only known lungworm of cattle?
- A. *Neostongylus linearis*
  - B. *Cystocaulus ocreatus*
  - C. *Dictyocaulus arnfieldi*
  - D. *Dictyocaulus viviparus*
70. Which is the most common cause of otitis media in rats?
- A. *Streptococcus pneumoniae*
  - B. *Pasteurella pneumotropica*
  - C. *Corynebacterium kutscheri*
  - D. *Mycoplasma pulmonis*