2017 Mock Exam
Knowledge

Not for dissemination outside of the JPC
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. Six year old, spayed female, miniature schnauzer

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>glucose</td>
<td>325</td>
<td>65-122 mg/dL</td>
</tr>
<tr>
<td>triglycerides</td>
<td>720</td>
<td>130-370 mg/dL</td>
</tr>
<tr>
<td>ALP</td>
<td>442</td>
<td>35-280 U/L</td>
</tr>
<tr>
<td>Sodium</td>
<td>141</td>
<td>145-158 mEq/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>103</td>
<td>106-120 mEq/L</td>
</tr>
</tbody>
</table>
11. Hypermagnesemia has been associated with which of the following conditions?

A. Dehydration
B. Hypoparathyroidism
C. diabetes mellitus
D. lactation tetany
12. Adult dog

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCT</td>
<td>30</td>
<td>37-55 %</td>
</tr>
<tr>
<td>MCV</td>
<td>57</td>
<td>60-72 fL</td>
</tr>
<tr>
<td>MCHC</td>
<td>30</td>
<td>33-37 g/dL</td>
</tr>
<tr>
<td>reticulocytes</td>
<td>60,000</td>
<td>0-60,000 x10^3/uL</td>
</tr>
</tbody>
</table>

The technologist noted: acanthocytes, schistocytes and leptocytes.
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. Young adult dog

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUN</td>
<td>47</td>
<td>7-28 mg/dL</td>
</tr>
<tr>
<td>creatinine</td>
<td>2.4</td>
<td>0.9-1.7 mg/dL</td>
</tr>
<tr>
<td>sodium</td>
<td>133</td>
<td>145-158 mEq/L</td>
</tr>
<tr>
<td>potassium</td>
<td>5.9</td>
<td>4.1-5.5 mEq/L</td>
</tr>
<tr>
<td>calcium</td>
<td>13.8</td>
<td>9.0-11.2 mg/dL</td>
</tr>
<tr>
<td>USPG</td>
<td>1.020</td>
<td>varies</td>
</tr>
</tbody>
</table>
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. Adult dog

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total T4</td>
<td>1.2</td>
<td>1.4-4.0 ug/dL</td>
</tr>
<tr>
<td>Free T4</td>
<td>1.3</td>
<td>1.2-3.4 ng/dL</td>
</tr>
<tr>
<td>TSH</td>
<td>0.2</td>
<td>0.1-0.45</td>
</tr>
</tbody>
</table>
17. 6 year old Arab gelding with a 2 week history of edema and inappetance

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUN</td>
<td>91</td>
<td>13-23 mg/dL</td>
</tr>
<tr>
<td>creatinine</td>
<td>10.4</td>
<td>0.1-1.7 mg/dL</td>
</tr>
<tr>
<td>calcium</td>
<td>15.3</td>
<td>10.4-12.9 mg/dL</td>
</tr>
<tr>
<td>total protein</td>
<td>4.7</td>
<td>5.5-6.9 g/dL</td>
</tr>
<tr>
<td>albumin</td>
<td>1.8</td>
<td>2.5-3.9 g/dL</td>
</tr>
<tr>
<td>globulin</td>
<td>2.9</td>
<td>1.9-3.9 g/dL</td>
</tr>
<tr>
<td>HCO3-</td>
<td>32.1</td>
<td>25-31 mmol/L</td>
</tr>
<tr>
<td>Anion gap</td>
<td>9</td>
<td>10-16</td>
</tr>
</tbody>
</table>
18. 23 year old Thoroughbred gelding that presented for acute onset of ataxia, depression and fever.

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient</th>
<th>Reference Interval</th>
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</thead>
<tbody>
<tr>
<td>Total bilirubin</td>
<td>7.5</td>
<td>0.3-3.0 mg/dL</td>
</tr>
<tr>
<td>Albumin</td>
<td>2.9</td>
<td>2.4-3.8 g/dL</td>
</tr>
<tr>
<td>BUN</td>
<td>45</td>
<td>11-26 mg/dL</td>
</tr>
<tr>
<td>ALP</td>
<td>231</td>
<td>109-352 U/L</td>
</tr>
<tr>
<td>AST</td>
<td>243</td>
<td>190-380 U/L</td>
</tr>
<tr>
<td>Ammonia</td>
<td>406</td>
<td>7-49 mmol/L</td>
</tr>
<tr>
<td>bile acids</td>
<td>4.9</td>
<td>0-19.0 mmol/L</td>
</tr>
</tbody>
</table>
19. 1 year old Cavalier King Charles Spaniel

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platelet count</td>
<td>75,000</td>
<td>164-475 x10^3/uL</td>
</tr>
<tr>
<td>Mean platelet volume (MPV)</td>
<td>16.8</td>
<td>10-12 fL</td>
</tr>
<tr>
<td>Plateletcrit</td>
<td>0.25</td>
<td>0.129-0.403%</td>
</tr>
</tbody>
</table>
20. 8-year-old, male castrated American Pit Bull. His sclera, conjunctiva, mucous membranes and pinna are icteric.

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

Rare siderotic inclusions present in RBCs.
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
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 ≥ 3.75cm
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 and 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 “pinky” 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. Fumonisn B1

D. Lolitrem B
53. The most common lesion of *Yersinia pseudotuberculosis* infection in goats is:

A. Conjunctivitis  
B. Enteritis  
C. Mastitis  
D. Hepatitis
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 \textit{rd1} allele?

A. FVB/N
B. 129
C. BALB/c
D. NOD
62. Crystals associated with 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^{11}
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?

- *Streptococcus pneumoniae*
- *Pasteurella pneumotropica*
- *Corynebacterium kutscheri*
- *Mycoplasma pulmonis*