Parasitology Review Questions for the National Boards

provided by the Companion Animal Parasite Council

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1. To combat Texas cattle fever caused by *Babesia bigemina*, the vector tick, *Boophilus annulatus*, was eradicated from the United States through an ambitious program of intensive dipping of cattle. What aspect of the life cycle of this tick allowed the eradication program to be successful?
   a. *Boophilus annulatus* is a one-host tick
   b. *Boophilus annulatus* prefers to feed on animals other than cattle
   c. *Boophilus annulatus* is a three-host tick
   d. *Boophilus annulatus* has low tolerance for conditions of high humidity
   e. *Boophilus annulatus* has a low tolerance for high temperatures

2. Which of the following animals would be most likely to serve as a source of *Trichinella* spp. infection to humans in the U.S.?
   a. rabbit
   b. sheep
   c. cattle
   d. bear
   e. deer

3. This parasite ova was found on fecal flotation of a 5-year-old dog with a history of intermittent bloody diarrhea. Which of the following is the most appropriate labeled pharmacotherapy?

   a. pyrantel
   b. ivermectin
   c. metronidazole
   d. trimethoprim-sulfa
   e. fenbendazole

4. An egg (ova) of *Pearsonema plica* was detected on urine sediment examination of a 4-year-old neutered male mixed-breed dog with a history of cystitis. How did the dog become infected with this parasite?
   a. skin penetration of third-stage larvae
   b. ingestion of earthworm containing first-stage larvae
   c. ingestion of egg containing third-stage larvae
   d. migration of third-stage larvae up urethra to embed in urinary bladder mucosa
   e. ingestion of dung beetle containing third-stage larvae

5. A 5-year-old gelding presents with ataxia and incoordination in all four limbs. A CSF tap reveals antibodies to *Sarcocystis neurona*. How did the horse most likely acquire this infection?
   a. transmission of sporozoites via the bite of a tabanid fly
   b. ingestion of oocysts from the feces of an infected horse
   c. ingestion of sarcocysts in the muscle tissue of an infected opossum
   d. transmission of sporozoites via tick bite
   e. ingestion of sporocysts from opossum feces in contaminated feed or water

6. This parasite was detected on fecal flotation of a 3-month-old puppy with acute diarrhea. Although many dogs will self-cure this parasite, you decide to prescribe a treatment. What treatment is most appropriate?

a. sulfadimethoxine
b. fenbendazole
c. ivermectin
d. metronidazole
e. pyrantel

7. An adult budgie presents with severe crusting on the beak and cere which has resulted in severe deformity of the beak. What diagnostic assay is most likely to reveal the etiologic agent?

a. serum chemistry profile
b. bacterial culture of the crusted material for the presence of *Staphylococcus*
c. microscopic examination of the crusted material for mites
d. radiographs to evaluate calcium deposition in the long bones
e. virus isolation attempts on the crusted material

8. West Nile virus is commonly transmitted to horses, people, and other animals via:

a. fleas
b. mosquitoes
c. horse flies
d. ticks
e. biting midges

9. Which of the following groups of ectoparasites is <u>not</u> known to occur on pet birds?

a. sucking lice (Anoplura)
b. chewing lice (Mallophaga)
c. fleas (Siphonaptera)
d. mites (Acari)
e. all of these groups of parasites commonly occur on pet birds

10. An intact male feral kitten presents for routine examination. You notice large numbers of glistening white eggs adherent to the hair shafts on the dorsal and lateral aspect of the thorax. Closer inspection reveals several dorsoventrally flattened insects clinging to the hair shafts themselves. What parasite is this?

a. *Phthirus*
b. *Linognathus*
c. *Hematopinus*
d. *Pediculus*
e. *Felicola*

11. This egg was detected on flotation of feces from a 3-year-old barn cat. How did the cat become infected with this parasite?

a. ingestion of infected flea
b. ingestion of infected rodent
c. ingestion of infected rabbit
d. transmitted via bite of infected flea
e. transmitted via bite of infected rodent

12. A 5-month-old intact female barn kitten presents with a subcutaneous mass in her neck. Upon examination you notice an opening in the mass. This organism was removed with forceps. What parasite is this?

a. *Oestrus*
b. *Hypoderma*
c. *Gasterophilus*
d. *Cuterebra*
e. *Cephenmyia*

13. Which of the following are effective for the treatment of clinical coccidiosis in cattle?
a. amprolium
b. metronidazole
c. decoquinate
d. a and b
e. all three drugs listed

14. Pigs become infected with the thorny-headed worm, *Macracanthorhynchus hirudinaceus,* upon:
a. ingestion of free L3 from the environment
b. skin penetration by L3 from the environment
c. ingestion of L3 in larvated eggs from the environment
d. ingestion of an infected beetle containing a cystacanth stage
e. ingestion of L1 in the fresh feces of a fellow pig

15. Lice infestations on cattle are more common in the:
a. winter
b. spring
c. summer
d. fall
e. there is no seasonal pattern to louse infestation

16. Cats infected with *Dirofilaria immitis*:
a. routinely develop severe reactions to administration of monthly heartworm preventatives due to rapid death of microfilaria
b. are usually microfilaremic, allowing diagnosis via Knott or filter test or examination of a wet mount of whole blood
c. occasionally develop disease due to aberrant migration of the worms, including to the central nervous system or ocular tissues
d. often harbor large numbers (>50) of adult worms
e. have not been shown to develop any significant clinical disease due to infection

17. Which of the following drugs is effective for treating *Giardia* and has the least toxicity problems associated with its use in dogs and cats?
a. ivermectin
b. milbemycin
c. metronidazole
d. albendazole
e. fenbendazole

18. Fecal flotation on a 4-year-old intact male cat reveals this parasite ova. What clinical disease is this parasite most commonly associated with?

a. cystitis
b. neurologic disease (circling, ataxia)
c. respiratory disease
d. vomiting
e. anemia

19. A rabbit with a severe ear infection caused by mites is brought to your clinic. The organism most likely responsible is

a. *Psoroptes cuniculi*
b. *Otodectes cynotis*
c. *Knemidocoptes mutans*
d. *Sarcoptes scabiei*
e. *Polyplax serrata*

20. Anthelmintic resistance has been widely documented to occur in small strongyles (= cyathostomes) of horses with which of the following dewormers?

a. pyrantel
b. fenbendazole
c. ivermectin
d. moxidectin
e. a and b

21. What arthropods are commonly known to transmit *Anaplasma marginale* between cattle in the United States?

a. *Dermacentor* ticks
b. *Tabanus* horse flies
c. biting midges (*Culicoides*)
d. mosquitoes
e. a and b

22. A dog presents with severe pruritus. Alopecia, erythematous skin, and hyperkeratosis are evident on the lateral elbows, lateral hocks, and the margins of the pinna. The dog scratches himself repeatedly during your examination, but otherwise appears healthy. What diagnostic test should you perform first?

a. skin scrape
b. fecal flotation
c. fecal sedimentation
d. urinalysis with sediment examination
e. complete blood count and serum chemistry panel

23. In recent years, several commercially-available equine dewormers have been modified to include praziquantel. What was responsible for this change?

a. new data demonstrating the clinical association between trematodes and colic
b. new data demonstrating the clinical association between tapeworms and colic
c. new data describing trematodes as a parasite of horses
d. new data describing tapeworms as a parasite of horses
e. recognition of widespread anthelmintic resistance in equine nematodes to the avermectin dewormers (ivermectin, moxidectin, etc…)

24. A litter of 2-week-old kittens presents covered with a huge number of fleas. The kittens are hypothermic, have pale mucous membranes, and appear moribund. Which of the following would not be an appropriate means of managing these kittens:

a. apply high concentration spot on pyrethrin (45-65%) residual flea control product to each kitten
b. keep the kittens warm by placing on a circulating-water heating pad
c. check PCV and consider blood transfusion if indicated
d. immediately remove fleas via flea comb and gentle shampoo
e. administer supplemental iron and vitamin B12 to each kitten

25. A client brought in these nematodes after his 6-year-old spayed female indoor/outdoor cat vomited them onto the kitchen floor this morning. How did the cat most likely become infected?

a. transplacental transmission from the queen as a kitten
b. transmammary transmission from the queen as a kitten
c. ingestion of an insect intermediate host or vertebrate paratenic host
d. ingestion of larvated egg from the enviroment
e. ingestion of the third-stage larvae from the vomit of another cat

26. Dogs acquire infection with *Hepatozoon* sp. upon:

a. tick bite
b. flea bite
c. ingestion of infected ticks
d. ingestion of infected fleas
e. none of the above

27. A cat is infested with mites that you identify as *Dermanyssus* species. You ask the client:

a. Whether or not the cat has access to birds
b. Whether or not the cat is a mouse hunter
c. Whether or not the cat spends a lot of time near rabbit dens
d. Whether or not the family dog has been pruritic

28. The term “measly beef” refers to the presence of:

a. eggs of *Taenia saginata* in muscle tissue
b. cysticerci of *Taenia saginata* in muscle tissue
c. sarcocysts (tissue cysts) of *Sarcocystis* in muscle tissue
d. tissue cysts of *Toxoplasma gondii* in muscle tissue
e. tissue cysts of *Neospora caninum* in muscle tissue

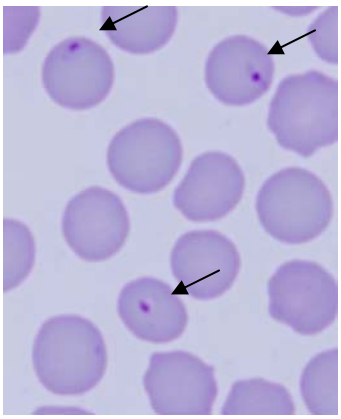
29. *Neospora caninum* infection in cattle causes:

a. weight loss
b. bloat
c. sterility in bulls
d. abortion
e. chorioretinitis in aged (> 10 years) animals

30. Infection with which of the following parasites has been associated with head tilt and ataxia in rabbits?

a. *Encephalitozoon cuniculi*
b. *Baylisascaris procyonis*
c. *Obeliscoides cuniculi*
d. *Passalurus ambiguous*
e. a and b

31. A 2-year-old indoor/outdoor neutered male cat presents with lethargy, depression, and anorexia of two days duration. Physical examination reveals a profoundly icteric, moribund cat with pale mucous membranes and severe dehydration. These organisms were found on blood smear. As you explain your treatment plan and prognosis to the client, she asks if there is anything she can do to protect her four other cats at home from becoming infected. What do you recommend?



a. prevent ingestion of rodents and rabbits
b. flea control, including keeping cats indoors and on highly effective flea control products
c. tick control, including keeping cats indoors and on highly effective tick control products
d. prevent ingestion of birds
e. administer a monthly heartworm preventative with intestinal parasite control

32. Control of Potomac horse fever in unvaccinated horses includes:

a. administering prophylactic doses of praziquantel to control the vector flukes
b. routine application of insecticides to horses to prevent feeding by flies
c. administering prophylactic doses of penicillin antibiotics to control the *Neorickettsia* (= *Ehrlichia*) *risticii*
d. avoiding aquatic habitats that may be more likely to harbor infected trematodes
e. protecting feed and water from possible contamination with opossum feces

33. A five-year-old horse presents with tail rubbing and anal pruritus. You suspect infection with the equine pinworm, *Oxyuris equi*. What diagnostic test is preferred to recover the eggs of this parasite?

a. direct smear
b. passive fecal flotation with sodium nitrate
c. centrifugal fecal flotation with sugar solution
d. fecal sedimentation
e. scotch tape test

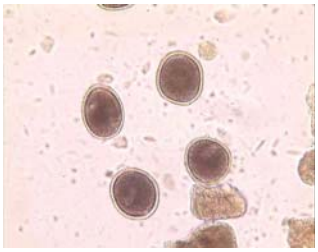
34. Treatment of dogs with severe, generalized demodectic mange should always include:

a. antibiotics
b. anti-mite agents
c. anti-fungal agents
d. antibiotics and anti-mite agents
e. anti-fungal agents and anti-mite agents

35. A litter of 2-week-old puppies presents with acute lethargy. On physical examination the puppies are moribund, cold, and have markedly pale mucous membranes. You suspect acute anemia due to hookworm infection. The next step in managing these puppies is:

a. prophylactically deworm with pyrantel pamoate
b. perform a fecal flotation and only deworm if eggs are detected
c. perform CBC, serum chemsitry, U/A, and abdominal radiographs on each pup
d. hold for quiet observation for 48 hours to monitor progression of disease
e. bathe each puppy to insure ectoparasites are eliminated

36. These eggs were found on fecal flotation from a 10-year-old spayed female indoor/outdoor cat. Is this an unusual diagnosis?



a. no, this parasite is commonly seen in both kittens and adult cats
b. yes, this parasite is extremely rare in cats in the United States
c. yes, this cat is likely immunocompromised and thus the immunity that would prevent the infection has lapsed
d. yes, this parasite is generally only found in kittens
e. no, this parasite is commonly seen in the feces of coprophagic cats that ingest the eggs in the feces of another animal

37. What aspect of the life cycle of *Habronema* and *Draschia* spp. accounts for the seasonal pattern seen in cutaneous habronemiasis, or summer sores, in affected horses?

a. the bacterial organisms which cause the secondary infections responsible for the lesions only flourish in the humid summer months
b. the larval stages of these nematodes become hypobiotic in the winter and are thus less irritating to horses
c. the ticks which transmit these parasites are only active in the summer months
d. the activity of the muscid flies which serve as vector and intermediate host of these nematodes is greatly reduced in the winter months
e. horses are ridden less in the winter months and thus the abrasive sores are less likely to develop

38. You examine an adult Himalayan cat who has just returned from Panama with his owner. The cat has a persistent, draining wound on the right lateral flank. You sedate the cat to clip the hair and examine the wound and discover several fly larvae, each ~ 1 cm long and bearing two distinct pigmented tracheal trunks. What parasite is this?

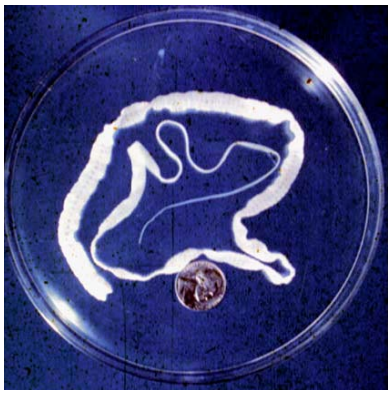
a. *Calliphora vomitoria*
b. *Haematobia irritans*
c. *Felicola subrostratus*
d. *Sarcophaga carnaria*
e. *Cochliomyia hominovorax*

39. Which of the following antiparasitic agents is most suitable for use against immature stages of *Fasciola hepatica*?

a. fenbendazole
b. ivermectin
c. praziquantel
d. albendazole
e. clorsulon

40. A 4-year-old neutered male outdoor cat from Florida presents with a 2-week history of weight loss, vomiting, and diarrhea. This parasite was produced in the vomitus. What is the most appropriate treatment?

a. ivermectin
b. fenbendazole
c. selamectin
d. praziquantel
e. milbemycin oxime



41. An 8-year-old mixed breed mare presents with head shaking and aural irritation due to the presence of several heavily-spined nymphal soft ticks in both ears. What parasite is this?

a. *Ixodes*
b. *Dermacentor*
c. *Otobius*
d. *Amblyomma*
e. *Rhipicephalus*

42. The short prepatent period of this nematode insures that eggs of this parasite are likely to be the first detected in a fecal float on a young foal:

a. *Oxyuris equi*
b. *Strongylus vulgaris*
c. *Parascaris equorum*
d. *Strongyloides westeri*
e. *Drashia megastoma*

43. A mixed breed dog that is housed outdoors on soil in a run presents with lesions on its ventral and dorsal surfaces of all four feet, sternum, and ventral abdomen. The areas are erythematous, thickened, and alopecic. The owner informs you that ever since the dog was adopted two years ago from a neighbor, the dog has only had yearly routine vaccinations (rabies, DA2PP). The organism responsible for these lesions is most likely:

a. *Aelurostrongylus abstrusus*
b. *Ancylostoma tubaeforme*
c. *Protostrongylus rufescens*
d. *Ancylostoma caninum*
e. *Bunostomum phlebotomum*

44. A client has just returned from a winter vacation to Greece where she adopted a stray dog. She is concerned about the multiple patches of alopecia on the dog's face and pinnae; you also note that the nasal planum is depigmented. With leishmaniasis as your top differential diagnosis, which statement is the least accurate?

a. The organism is found intracellularly in erythrocytes.
b. It is unknown exactly how infection is spread from dog to dog within North America.
c. This disease is only very rarely reported in cats.
d. Horses can also suffer from the cutaneous form.
e. The incubation period can be as long as several years.

45. These organisms were found in the aural exudate from a 12-week-old kitten with a 3-day history of external otitis and aural pruritus. Of the choices listed, what is the most appropriate therapy?

a. an organophosphate/carbamate (e.g. fenthion, carbaryl)
b. a benzimidazole (e.g. fenbendazole)
c. an avermectin/milbemycin (e.g. ivermectin, milbemycin oxime, selamectin)
d. amoxicillin
e. doxycycline

46. A 5-year-old intact male cat present with choleostasis and liver failure. Fecal sedimentation reveals an operculated egg with a fully-formed miracidium. The most likely diagnosis is:

a. *Fasciola hepatica*
b. *Platynosomum fastosum*
c. *Taenia taeniaeformis*
d. *Spirometra mansonoides*
e. *Dipylidium caninum*

47. This parasite is unusual among the trichostrongyles in that it not only infects ruminants, but also infects many other host species including horses and pigs. It is one of the few parasites of potential concern in a mixed-species grazing situation.

a. *Cooperia punctata*
b. *Trichostrongylus axei*
c. *Haemonchus contortus*
d. *Nematodirus battus*
e. *Ostertagia ostertagi*

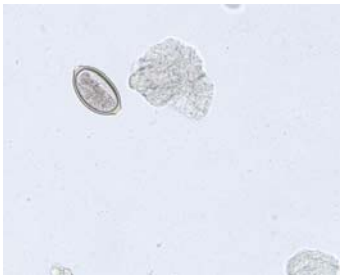
48. Foals become infected with *Parascaris equorum*:

a. when they ingest larvated eggs from a contaminated environment
b. transplacentally (in utero) from the somatic tissue stores in the mare
c. transmammarily (via milk) from larvae mobilized from mare somatic tissue
d. by inadvertent ingestion of insect intermediate hosts when grazing
e. by inadvertent ingestion of avian tissues in contaminated feed

49. The main significance of *Acanthocheilonema* (=*Dipetalonema*) *reconditum* in veterinary medicine is:

a. severe disease caused by death of microfilaria following treatment for *Dirofilaria immitis*
b. pathology seen in infected fleas and future potential for biological flea control
c. severe pathology caused by migration of this subcutaneous worm
d. microfilaria are similar in appearance to those of *Dirofilaria immitis* and thus may confound diagnosis
e. severe disease caused by death of subcutaneous adult nematodes following treatment for *Dirofilaria immitis*

50. Routine fecal flotation from a 4-year-old cat with no history of clinical disease revealed this parasite egg. Adults of this parasite are most likely to be found in the:



a. esophagus
b. nasal, tracheal, and bronchial mucosa
c. large intestine
d. stomach
e. lung parenchyma

51. Although now rarely seen in managed horses, the migrating larvae of this large strongyle can cause severe inflammation in the wall of the cranial mesenteric artery, and this nematode was, at one time, the most commonly diagnosed cause of equine colic:

a. *Strongylus minor*
b. *Strongylus edentatus*
c. *Strongylus equinus*
d. *Strongylus cyathostomus*
e. *Strongylus vulgaris*

52. You perform rectal palpation on a 2-year-old standardbred horse with a history of acute diarrhea and colic. When you withdraw your arm you notice several bright red larval worms wriggling around on the palpation sleeve. What equine nematodes are most likely responsible?

a. ascarids (*Parascaris equorum*)
b. large strongyles (*Strongylus* spp)
c. small strongyles (cyathostomes)
d. pinworms (*Oxyuris equi*)
e. threadworms (*Strongyloides westeri*)

53. A 5-month-old spaniel puppy vomits a mass of thick stout white nematodes. On close inspection, you note the presence of three lips at the anterior end of each of the worms. What parasite is this most likely to be?

a. *Toxocara canis*
b. *Toxocara cati*
c. *Toxascaris leonina*
d. *Ancylostoma caninum*
e. *Trichuris vulpis*

54. Which of the following nematodes is free-living by nature, but occasionally causes opportunistic infections associated with dermatitis in animals?

a. *Rhabditis*
b. *Physaloptera*
c. *Gongylonema*
d. *Toxascaris*
e. *Dioctophyme*

55. A dog that chases and eats wild rabbits is most likely to become infected with which cestode?

a. *Echinococcus granulosus*
b. *Taenia saginata*
c. *Diphyllobothrium latum*
d. *Dipylidium caninum*
e. *Taenia pisiformis*

56. A pigeon presents with a 1-week history of anorexia and weight loss. Accumulations of a white, caseous exudate are present in the oral cavity. A wet mount of this material reveals several pear-shaped flagellated protozoa with an undulating membrane. The most likely diagnosis is:

a. *Trichinella*
b. *Trichosomoides*
c. *Trichostrongylus*
d. *Trichomonas*
e. *Trypanosoma*

57. In recent years, several outbreaks of trichinosis in humans have been associated with ingestion of undercooked meat from horses containing infective larvae of *Trichinella spiralis*. The *Trichinella* infection in the horses likely resulted from unusual management practices prior to market; horses are not considered a likely natural host for *Trichinella* spp. because they are:

a. not arctic in origin
b. not marsupials
c. mammals
d. monogastric
e. herbivores

58. This parasite was found on fecal flotation from a newly-acquired kitten with diarrhea. After you present your treatment plan, the clients ask if their dogs are also at risk of developing disease due to infection with this parasite. You respond:

a. no, this parasite is species specific and only infects cats
b. yes, but because this parasite requires an intermediate host to develop to the infectious stage, direct transmission from the kitten to the dogs is unlikely
c. yes, this parasite transmits freely between dogs and cats
d. as long as the dogs are on a monthly heartworm preventative that also controls intestinal parasites they should be safe from infection
e. as long as they prevent the dogs from ingesting cat feces from the litter box the dogs should be safe from infection

59. Differentiation between a tick larva and a tick nymph is best achieved how?

a. A tick larva has eight legs and a nymph has six.
b. A tick larva has six legs and a nymph has eight.
c. The chelicerae are not present on a tick larva.
d. A tick larva is only found in the environment and never on an animal.
e. A tick larva has only an anal pore while both an anal and genital pore are present in a nymph.

60. Which of the following drugs would be the best choice for the treatment of a *Fasciola hepatica* infection in a pregnant beef cow?

a. albendazole
b. fenbendazole
c. eprinomectin
d. clorsulon
e. praziquantel

61. An 8-year-old dairy cow presents with nodular lesions on her neck from which a caseous material is expressed. Microscopic examination of the material reveals these organisms. You recommend:

a. no treatment because this is a self-limiting and non-contagious condition
b. isolate the affected cow and immediately report to state and federal veterinarians
c. cull the affected cow to prevent spread through the herd
d. treat with a single application of a pour-on avermectin
e. aggressively treat every 2 weeks for several months to prevent spread through the herd

62. Which of the following helminths is <u>rare</u> in cats in the continental United States:
a. *Dipylidium caninum*
b. *Ancylostoma tubaeforme*
c. *Toxocara cati*
d. *Trichuris felis*
e. *Taenia taeniaeformis*

63. You examine a pruritic pig with crusting hyperkeratotic lesions on the pinna of both ears. You confirm your intial diagnosis with a microscopic examination of a skin scrape. What treatment is most likely to be effective?
a. lincomycin
b. fenbendazole
c. ivermectin
d. metronidazole
e. toltrazuril

64. A five-year old intact female Labrador retriever presents for routine spay. At laparotomy, a stout red nematode nearly 1 meter in length is found free in the abdominal cavity. What parasite is this?
a. *Dioctophyme renale*
b. *Dipylidium caninum*
c. *Dipetalonema reconditum*
d. *Dirofilaria immitis*
e. *Diphyllobothrium latum*

65. Which of the following types of adult cattle are, as a group, most likely to be infected with the causative agent of bovine trichomoniasis?
a. bulls > 4 years of age
b. cows
c. steers
d. virgin heifers
e. a and b

66. Horse bot flies (*Gasterophilus* spp.) adhere their eggs to the hair shafts of horses. Where in the horse are the larvae of *Gasterophilus* spp. found?

a. nasal cavity
b. ileocecal junction
c. stomach
d. subcutaneous cysts on the dorsum
e. subcutaneous cysts on the vental aspect of the neck

67. A 9-year-old spayed female indoor-only cat is brought to your clinic because the client is 4 months pregnant and concerned about toxoplasmosis. Which of the following is <u>not</u> an appropriate course of action:

a. submit a serum sample from the cat for a *Toxoplasma gondii* titer and recommend euthanizing the cat if the titer is positive
b. instruct the client to only eat thoroughly cooked meat
c. encourage the client to continue to keep the cat indoors and prevent the cat from ingesting any wildlife that may serve as reservoir hosts
d. instruct the client that she should not feed raw meat to her cat
e. encourage the client to have someone else change the litterbox for the duration of her pregnancy

68. Which organ is <u>most commonly</u> affected in cats that develop disease due to infection with *Dirofilaria immitis*?

a. liver
b. lung
c. kidney
d. central nervous system
e. skeletal muscle

69. Disease caused by cyathostomes, or small strongyles, in horses generally results from:

a. larval irritation in the skin resulting in seasonal dermatitis, commonly referred to as "summer sores"
b. extensive migration of larvae throughout the liver, lungs, and kidneys of infected horses
c. aggressive blood feeding activity of the adult worms
d. tracheal and bronchial irritation due to presence of adult worms in the airways
e. emergence of encysted larvae from the intestinal mucosa

70. What diagnostic test is best able to detect eggs in the feces of a 1-week-old puppy infected with ascarids and hookworms?

a. sodium nitrate fecal flotation
b. zinc sulfate fecal flotation with centrifugation
c. direct smear
d. fecal sedimentation
e. none of these methods because eggs will not be present

71. *Toxoplasma gondii* can be transmitted to people via:

a. casual contact with an infected intermediate host
b. casual contact with a cat
c. ingestion of undercooked meat
d. ingestion of unwashed fruits and vegetables
e. c and d

72. Puppies that die at 2 days of age because of large numbers of larval nematodes migrating and molting in their lungs are most likely infected with which parasite?

a. *Toxascaris leonina*
b. *Trichuris vulpis*
c. *Trichostrongylus axei*
d. *Toxocara canis*
e. *Physaloptera*

73. *Moneizia* spp. are not known to cause any disease or production loss in infected cattle. However, if treatment is desired, which of the following drugs would be expected to remove these parasites from infected cattle?

a. ivermectin
b. eprinomectin
c. doramectin
d. albendazole
e. dichlorvos

74. The currently-available monthly heartworm preventatives protect dogs from acquiring infection with adult heartworms by:

a. killing any larvae that may have been acquired by the dog in the preceding 30-day period
b. providing complete protection against any newly-introduced larval worms for more than 30 days following treatment
c. rendering the adult worms sterile, thereby preventing production of additional worms in an infected dog
d. altering the pheromone profile of treated dogs thereby discouraging feeding by vector mosquitoes
e. serving as a microfilaricide, thereby eliminating young worms before they are able to develop to adults in a treated dog

75. You examine a herd of longhorn cattle in southern Texas with skin lesions. Affected animals have profound hyperkeratotic lesions on their neck, brisket, and ventral abdomen and have lost weight and condition since this dermatitis developed. A skin scrape reveals *Sarcoptes scabiei* var *bovis*. What is the appropriate way to manage these cows?

a. immediately report your findings to appropriate state and federal authorities
b. no treatment is needed since this is a self-limiting condition and the animals will develop immunity and self-cure
c. treat the affected animals with a single application of a pour-on avermectin
d. treat the affected animals with a single application of a pyrethrin/pyrethroid
e. treat the affected animals with a single application of an organophosphate

76. Which of the following biting flies have been implicated as a biological vector of African horse sickness?

a. *Anopheles*
b. *Culex*
c. *Culicoides*
d. *Aedes*
e. *Musca*

77. A four-year-old mixed breed dog housed in a small, dirt-floored pen presents with a history of weight loss, diarrhea, and tenesmus. The feces is soft and contains bright red blood. What parasite is most likely to cause the symptoms described?

a. *Dipylidium caninum*
b. *Ancylostoma caninum*
c. *Toxocara canis*
d. *Trichuris vulpis*
e. *Taenia pisiformis*

78. Neurocystocercosis develops in people following ingestion of eggs of *Taenia solium* found in:

a. undercooked meat of infected pigs
b. feces of infected pigs
c. feces of infected cows
d. feces of infected people
e. undercooked meat from infected cows

79. A client who just recently established a dairy herd is concerned about the high incidence of pinkeye among her cows. You tell her that the insect that transmits the infectious agent, *Moraxella bovis*, is *Musca autumnalis*. Which of the following is not true about *Musca autumnalis*?

a. Adult *Musca autumnalis* are similar in general appearance to house flies (*Musca domestica*).
b. The adult feeds on tears, saliva, nasal mucus, and blood.
c. Numbers can be controlled by piling manure into heaps to increase fermentation.
d. Permethrins can be used topically for control.
e. The eggs are laid on the cow's face along the eyelid margin.

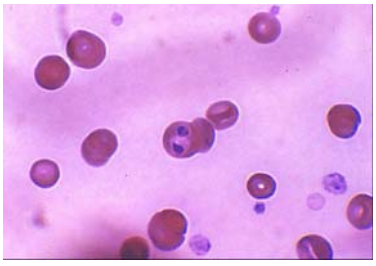
80. The most complete medical treatment for a cat infected with *Dipylidium caninum* is:

a. praziquantel, imidacloprid
b. praziquantel, pyrantel
c. pyrantel, fenbendazole
d. pyrantel, imidacloprid
e. fipronil, ivermectin

81. Which of the following products is appropriate pharmacotherapy for equine protozoal myeloencephalitis?

a. metronidazole
b. nitazoxanide
c. ponazuril
d. fenbendazole
e. b and c

82. A 3-year-old intact male terrier presents with pale mucous membranes and lethargy. Blood smear reveals large, paired piroplasms within erythrocytes. What is the most appropriate pharmacotherapy?



a. enrofloxacin
b. ivermectin
c. sulfadimethoxine
d. imidocarb
e. amoxicillin

83. *Ostertagia ostertagi* is the most important nematode parasite of cattle. This nematode causes disease in cattle primarily by:

a. blood loss from wounds in the abomasum left by feeding adult worms
b. destruction of the abomasal glands due to larval growth within these glands
c. intestinal inflammation resulting from secretion of toxins from adult worms
d. destruction of the liver, spleen, and sometimes kidneys as larvae migrate through the body before returning to the abomasum to complete their development
e. destruction of the small intestinal mucosa, particularly in the duodenum, due to extensive larval migration in the mucosa

84. A 5-year-old neutered male golden retriever from Oregon with a history of salmon consumption presents with high fever, lethargy, diarrhea, and generalized lymphadenopathy. Fecal sedimentation examination reveals small operculated eggs. What is the most appropriate pharmacotherapy?

a. ivermectin
b. doramectin
c. doxycycline
d. pyrantel
e. lincomycin

85. Neonatal porcine diarrhea develops subsequent to infection with:

a. *Isospora suis*
b. *Eimeria porci*
c. *Eimeria scabra*
d. *Macracanthorhynchus hirudinaceus*
e. *Stephanurus dentatus*

86. *Thelazia*, an eyeworm of cattle and horses that is occasionally found in small animals, is transmitted via:

a. mosquitoes
b. sandflies
c. ticks
d. keds
e. muscid flies

87. Dogs acquire infection with *Sarcocystis* sp. via:

a. ingestion of sporulated oocyst from the environment
b. ingestion of infected tick
c. ingestion of intermediate host containing sarcocyst in muscle
d. ingestion of naked sporocyst from the environment
e. tick bite

88. Lesions due to infection with *Ascaris suum* include:

a. bilateral ocular opacities
b. fistulous tracts on the skin overlying the tail head
c. milk spot lesions in the liver due to scarring
d. laryngeal scarring causing abnormal vocalizations
e. grossly thickened renal capsule and necrosis of perirenal fat

89. Flea allergy dermatitis in dogs characteristically appears:
    a. in the webbed area between the first and second toe
    b. in the axillary region
    c. around the eyes and mouth
    d. on the internal surface of the pinna
    e. at the base of the tail

90. You examine a herd of beef cattle with an afebrile respiratory disease that has not responded to antibiotics. Several of the younger animals are coughing. You suspect infection with a respiratory parasite. What diagnostic test would be most likely to reveal evidence of infection with the most likely parasitic etiologic agent?
    a. direct smear for motile protozoa
    b. blood antigen test
    c. Baermann exam for larvae in feces
    d. fecal float for ascarid eggs
    e. fecal sedimentation for trematode eggs

91. Infection of sheep and goats with *Bunostomum* would be expected to cause:
    a. abortion storms
    b. clinically inapparent respiratory disease
    c. severe central nervous system disease
    d. anemia
    e. mucopurulent ocular and nasal discharge

92. Decoquinate is continually fed to confined poultry in order to control:
    a. *Leucocytozoon* spp
    b. *Isospora* spp.
    c. *Ascaridia* spp.
    d. *Trichomonas gallinae*
    e. *Eimeria* spp..

93. Which tick of dogs is also referred to as the “kennel tick” because it can survive inside homes and kennels, creating an indoor source of infestation for dog:
    a. *Rhipicephalus sanguineus*, the brown dog tick
    b. *Amblyomma americanum*, the lone star tick
    c. *Dermacentor variabilis*, the American dog tick
    d. *Ixodes scapularis*, the black-legged tick
    e. *Amblyomma maculatum*, the Gulf Coast tick

94. The preferred method for detecting the larvae of *Aelurostrongylus abstrusus* in cats is:
    a. fecal sedimentation
    b. fecal filtration
    c. Baermann examination of feces
    d. direct smear of feces
    e. thoracic radiographs

95. You necropsy a turkey and find target-shaped circular areas of necrosis in the liver and caseous cores in the ceca. What is the most likely diagnosis?

a. *Ascaridia gallinae*
b. *Histomonas meleagridis*
c. *Eimeria meleagridis*
d. *Tyzzeria pernicoiosa*
e. *Trichomonas gallinae*

96. A 3-year-old spayed female outdoor cat presents with respiratory distress. Thoracic radiographs reveal 3 large, distinct pulmonary cysts. Operculate eggs are found on fecal sedimentation. The most appropriate treatment is:

a. praziquantel
b. thoracotomy to allow complete surgical excision of the cystic masses
c. pyrantel
d. ivermectin
e. melarsomine dihydrochloride

97. Several elk and moose in a mixed-species hoof stock exhibit at a wildlife park develop neurologic disease, including ataxia and torticollis. However, the white-tailed deer in the exhibit are all normal. You suspect a nematode may be responsible. If so, how did the animals become infected?

a. ingestion of snail or slug intermediate hosts infected with third-stage larvae (L_3)
b. ingestion of first-stage larvae (L_1) shed in feces of infected deer
c. ingestion of third-stage larvae (L_3) free on pasture
d. skin penetration by first-stage larvae (L_1) shed in feces of infected deer
e. skin penetration of third-stage larvae (L_3) free on pasture

98. You examine a herd of goats with pale mucous membranes and submandibular edema. Necropsy examination of one goat reveals nematodes in the abomasum with a characteristic spirally-striped, "barber pole" appearance. What parasite is this most likely to be?

a. *Teladorsagia circumcincta*
b. *Trichostrongylus colubriformis*
c. *Haemonchus contortus*
d. *Nematodirus battus*
e. *Cooperia punctata*

99. Although variability exists between animals, lesions of flea-bite dermatitis in cats most commonly develop on the:

a. dorsum at the base of the tail
b. neck
c. pinna of the ears
d. ventral pelvic area
e. lateral elbows and lateral hocks

100. Examination of a direct smear from fresh diarrheic feces of a kitten revealed several motile nematode larvae, each ~ 300 microns long, with a distinct rhabditiform esophagus. The most appropriate treatment for this parasite is:

a. metronidazole
b. fenbendazole
c. praziquantel
d. piperazine
e. epsiprantel

Key to the CAPC Parasitology Board Review Questions

1. A
2. D
3. E
4. B
5. E
6. A
7. C
8. B
9. A
10. E
11. B
12. D
13. A
14. D
15. A
16. C
17. E
18. E
19. A
20. E
21. E
22. A
23. B
24. A
25. C
26. C
27. A
28. B
29. D
30. E
31. C
32. D
33. E
34. D
35. A
36. A
37. D
38. E
39. E
40. D
41. C
42. D
43. D
44. A
45. C
46. B
47. B
48. A
49. D
50. B
51. E
52. C
53. A
54. A
55. E
56. D
57. E
58. A
59. B
60. D
61. A
62. D
63. C
64. A
65. E
66. C
67. A
68. B
69. E
70. E
71. E
72. D
73. D
74. A
75. A
76. C
77. D
78. D
79. E
80. A
81. E
82. D
83. B
84. C
85. A
86. E
87. C
88. C
89. E
90. C
91. D
92. E
93. A
94. C
95. B
96. A
97. A
98. C
99. B
100. B