

GENERAL PARASITOLOGY TEST 1

1. **In a patient with diarrhea, occasionally *Entamoeba histolytica*/*E. dispar* (*Entamoeba histolytica* complex) (four-nucleated cysts, no chromatoidal bars) are identified as being present; however, these cells, which are identified as protozoa, are really:**
  - A. Macrophages
  - B. Epithelial cells
  - C. Eosinophils
  - D. Polymorphonuclear leukocytes
  
2. **Parasitic organisms that may be transmitted sexually do not include:**
  - A. *Entamoeba histolytica*
  - B. *Dientamoeba fragilis*
  - C. *Diphyllobothrium latum*
  - D. *Trichomonas vaginalis*
  
3. **The use of Neti pot nasal irrigation has been linked to infections caused by:**
  - A. *Naegleria fowleri*
  - B. *Entamoeba histolytica*
  - C. *Trichomonas vaginalis*
  - D. Microsporidia
  
4. **The following organisms have been implicated in waterborne and foodborne outbreaks within the United States. The suspect organisms are:**
  - A. *Entamoeba histolytica*, *Entamoeba hartmanni*
  - B. *Giardia lamblia* (*G. intestinalis*, *G. duodenalis*), *Cryptosporidium* spp.
  - C. *Dientamoeba fragilis*, *Trichomonas vaginalis*
  - D. *Pentatrichomonas hominis*, *Cystoisospora belli*
  
5. **Which specimen is least likely to provide recovery of *Trichomonas vaginalis*?**
  - A. Urine
  - B. Feces
  - C. Urethral discharge
  - D. Vaginal discharge
  
6. **An *Entamoeba histolytica* (true pathogen) trophozoite has which of the following characteristics?**
  - A. Compact karyosome in the nucleus, ingested red blood cells (RBCs), and clear pseudopodia
  - B. Ingested RBCs, clear pseudopodia, and uneven chromatin on the nuclear membrane
  - C. Ingested polymorphonuclear leukocytes (PMNs), and large glycogen vacuoles
  - D. Large blot-like karyosome, and ingested PMNs

7. **A six-year-old boy with meningitis is seen in the emergency room; he has a history of swimming in a warm-water spring. Motile amebae that measure 10 microns are seen in the CSF and are most likely:**
- A. *Iodamoeba bütschlii* trophozoites
  - B. *Endolimax nana* trophozoites
  - C. *Dientamoeba fragilis* trophozoites
  - D. *Naegleria fowleri* trophozoites
8. **Suspect amebae from a gum lesion were seen on a Gram stain. Additional routine trichrome staining (used for fecal smears) demonstrated amebae with a single nucleus and ingested PMNs. The correct identification is:**
- A. *Trichomonas tenax*
  - B. *Entamoeba coli*
  - C. *Entamoeba gingivalis*
  - D. *Entamoeba polecki*
9. **Worldwide the most common parasitic organism identified from stool is:**
- A. *Entamoeba histolytica*
  - B. *Blastocystis* spp.
  - C. *Giardia lamblia* (*G. intestinalis*, *G. duodenalis*)
  - D. *Entamoeba coli*
10. **Charcot-Leyden crystals are occasionally seen in stool specimens, may be associated with an immune response, and are formed from the breakdown products of:**
- A. Eosinophils
  - B. Lymphocytes
  - C. Monocytes
  - D. Neutrophils
11. **Recommended methods for the recovery and identification of *Cystoisospora belli* are:**
- A. Gram stain and direct wet mount
  - B. Trichrome stain and concentration sediment
  - C. Silver stain and direct wet mount
  - D. Modified acid-fast stain and concentration sediment
12. **Which of the following organisms does not have a cyst form in the life cycle?**
- A. *Balantidium coli*
  - B. *Trichomonas vaginalis*
  - C. *Dientamoeba fragilis*
  - D. *Chilomastix mesnili*

13. **In a fecal concentration sediment examination, an operculated tapeworm egg that might be seen is:**
- A. *Dipylidium caninum*
  - B. *Clonorchis sinensis*
  - C. *Diphyllobothrium latum*
  - D. *Paragonimus westermani*
14. **The ingestion of poorly cooked infected pork can result in an infection with:**
- A. *Taenia solium* and *Trichinella spiralis*
  - B. *Taenia saginata* and *Hymenolepis nana*
  - C. *Trichuris trichiura* and *Hymenolepis diminuta*
  - D. *Diphyllobothrium latum* and *Ascaris lumbricoides*
15. **Visceral larva migrans has been associated with which of the following organisms and diagnostic procedures:**
- A. *Angiostrongylus* and CSF examination
  - B. *Dracunculus* and skin biopsy
  - C. *Onchocerca* and blood smear
  - D. *Toxocara* and serology
16. **Which of the following organism/information combinations is incorrect?**
- A. *Toxoplasma gondii* and serology
  - B. *Cryptosporidium* spp. and immunosuppressed patients only
  - C. *Echinococcus granulosus* and hydatid cysts
  - D. *Strongyloides stercoralis* and internal autoinfection
17. **When performing a concentration for the recovery of schistosome eggs from fresh urine or stool, what solution should be used and why?**
- A. Saline; to prevent premature hatching of the eggs
  - B. Formalin; to preserve eggs if present
  - C. Water; to encourage eggs to float
  - D. None of the above
18. **The following groups of helminth eggs are listed in size from largest to smallest; which group is correct?**
- A. *Fasciola hepatica*, *Clonorchis sinensis*, *Taenia* spp.
  - B. *Hymenolepis nana*, *Paragonimus westermani*, *Fasciolopsis buski*
  - C. *Schistosoma mansoni*, *Hymenolepis diminuta*, *Opisthorchis* spp.
  - D. *Ascaris lumbricoides*, *Schistosoma haematobium*, *Diphyllobothrium latum*
19. **Examination of a sputum specimen may reveal infection with:**

- A. *Trichinella spiralis*, *Paragonimus* spp.
  - B. *Paragonimus* spp., *Strongyloides stercoralis*
  - C. *Strongyloides stercoralis*, *Taenia solium*
  - D. *Taenia solium*, *Cryptosporidium* spp.
20. ***Strongyloides stercoralis* rhabditiform (non-infective) larvae are characterized by which of the following?**
- A. Short buccal capsule and large genital primordium
  - B. Long buccal capsule and pointed tail
  - C. Small genital primordium and pointed tail
  - D. Large genital primordium and notch in tail
21. **In infections with *Taenia solium*, the human can serve as the:**
- A. Definitive host
  - B. Intermediate host
  - C. Definitive or intermediate host
  - D. None of the above
22. **The adult tapeworm of *Echinococcus granulosus* can be found in the intestine of the:**
- A. Dog
  - B. Cow
  - C. Sheep
  - D. Human
23. **Molecular panels currently available for the identification of intestinal protozoa are:**
- A. Complete in terms of recognized pathogens
  - B. Incomplete in terms of recognized pathogens
  - C. 100% sensitive and specific for panel organisms
  - D. Less sensitive than available immunoassays
24. **The most appropriate test for the confirmation of infection with *Enterobius vermicularis* is:**
- A. The routine O&P concentration
  - B. The routine O&P permanent stained smear
  - C. The cellulose tape or swab method
  - D. None of the above
25. **The pathogenicity of *Blastocystis* spp. has been clarified; newer information suggests that:**
- A. The immune capability of the host is totally responsible for symptomatic infections.
  - B. Most organisms are misidentified as artifacts.
  - C. Nine subtypes/strains included in the name, some are pathogenic and some nonpathogenic.
  - D. The number of organisms present determines pathogenicity.

26. **Holding blood too long in EDTA prior to thick and thin blood smear preparation can result in which of the following problems?**
- A. Changes in parasite morphology, poor staining, and diminished organism numbers within a few hours.
  - B. Loss of Schüffner's dots, poor adherence of blood to the slide, and the initiation of the vector life cycle within the tube of blood.
  - C. None of the above.
  - D. All of the above.
27. **A preliminary test for the presumptive diagnosis of *Cyclospora cayentanensis* is the use of:**
- A. Autofluorescence
  - B. The examination of a direct wet mount
  - C. An immunoassay
  - D. A routine trichrome permanent stain.
28. **Infections with microsporidial spores can be confirmed using:**
- A. Phase contrast microscopy and routine trichrome stains.
  - B. Electron microscopy and modified acid-fast stains.
  - C. Fluorescence microscopy and hematoxylin stains.
  - D. Light microscopy and modified trichrome stains.
29. **Routine thick blood films are characterized by which of the following?**
- A. The visualization of the parasite within the RBCs.
  - B. The ability to identify the parasites to the species level.
  - C. The necessity to lake the RBCs during or prior to staining.
  - D. The examination of less blood per field than the routine thin blood film.
30. **"Internal autoinfection" can be seen with which of the following parasites?**
- A. *Cystoisospora belli* and *Strongyloides stercoralis*
  - B. *Strongyloides stercoralis* and *Cryptosporidium* spp.
  - C. *Cryptosporidium* spp. and *Giardia lamblia* (*G. intestinalis*, *G. duodenalis*)
  - D. *Giardia lamblia* (*G. intestinalis*, *G. duodenalis*) and *Cystoisospora belli*
31. **Microsporidial infections cause diarrhea, dissemination from the GI tract to other body sites, and eye infections. Possible routes of infections have been identified as:**
- A. Ingestion and inhalation
  - B. Direct contamination from the environment
  - C. All of the above
  - D. None of the above
32. **Confirmation of a microsporidial infection can be confirmed by seeing:**

- A. The oocyst wall.
  - B. Sporozoites within the spore.
  - C. Evidence of a polar tubule.
  - D. Organisms stained with modified acid-fast stains.
33. **A helminth egg with terminal polar plugs is:**
- A. *Ascaris lumbricoides*
  - B. *Trichuris trichiura*
  - C. Hookworm
  - D. *Enterobius vermicularis*
34. **An immunocompromised patient continues to have diarrhea after a series of 3 O&P examinations were negative (concentration, permanent stained smears). The most likely organisms that might be responsible for the patient's continued symptoms are:**
- A. *Cryptosporidium* spp. and *Cystoisospora belli*
  - B. Microsporidia or *Cyclospora cayetanensis*
  - C. *Cryptosporidium* spp. and microsporidia
  - D. *Cystoisospora belli* and *Cyclospora cayetanensis*
35. **The early ring stages of *Plasmodium knowlesi* most closely resemble those of:**
- A. *Plasmodium vivax*
  - B. *Plasmodium ovale*
  - C. *Plasmodium malariae*
  - D. *Plasmodium falciparum*
36. **Humans acquire infections with *Diphyllobothrium latum* adult worms through:**
- A. Ingestion of raw infected freshwater crabs
  - B. Skin penetration of cercariae
  - C. Peeling the coat from uncooked water chestnuts with the teeth; subsequent swallowing
  - D. Ingestion of raw infected freshwater fish
37. **Humans can serve as both the intermediate and definitive host in infections caused by:**
- A. *Hymenolepis nana*
  - B. *Ascaris lumbricoides*
  - C. *Schistosoma japonicum*
  - D. *Enterobius vermicularis*
38. ***Babesia* spp. are organisms that have been implicated in disease in immunocompetent and immunosuppressed patients. Morphologically, these parasites resemble:**
- A. Microsporidian spores
  - B. *Leishmania donovani* amastigotes
  - C. *Trypanosoma cruzi* trypomastigotes

- D. *Plasmodium falciparum* ring forms
39. ***Toxoplasma gondii* is characterized by:**
- A. Possible congenital infections, ingestion of infective oocysts, and ingestion of raw meats
  - B. Worldwide distribution and possible difficulties with the interpretation of serological results
  - C. Both A and B
  - D. None of the above
40. **Massive hemolysis and central nervous system involvement are more common with:**
- A. *Plasmodium vivax*
  - B. *Plasmodium ovale*
  - C. *Plasmodium malariae*
  - D. *Plasmodium falciparum*
41. **Older developing stages (trophs, schizonts) of *Plasmodium knowlesi* most closely resemble those of:**
- A. *Plasmodium vivax*
  - B. *Plasmodium ovale*
  - C. *Plasmodium malariae*
  - D. *Plasmodium falciparum*
42. **The incorrect match between disease and symptoms is:**
- A. Enterobiasis – dysentery
  - B. Paragonimiasis – hemoptysis
  - C. Cryptosporidiosis – watery diarrhea
  - D. Toxoplasmosis in compromised host – central nervous system symptoms
43. **The formalin-ether (ethyl acetate) concentration procedure for fecal specimens is primarily used to demonstrate:**
- A. Protozoan trophozoites
  - B. Motility of helminth larvae
  - C. Formation of amoebic pseudopods
  - D. Protozoan cysts and helminth eggs
44. **Cysts of *Iodamoeba bütschlii* typically have:**
- A. A large glycogen vacuole
  - B. A heavily vacuolated cytoplasm
  - C. Chromatoidal bars with rounded ends
  - D. Many ingested bacteria and yeast cells
45. **There are relatively few STAT parasitology test requests. The most obvious order would be:**

- A. Blood films for malaria
  - B. Culture of amoebic keratitis
  - C. Ova and parasite examination for giardiasis
  - D. Baermann's concentration for strongyloidiasis
46. **The microsporidia are organisms (reclassified from protozoa to fungi) that have been implicated in human disease primarily in:**
- A. Adult patients with congenital immunodeficiencies
  - B. Patients who have been traveling in the tropics
  - C. Pediatric patients under the age of 5
  - D. Immunocompromised patients
47. **The incorrect match between organism and characteristic is:**
- A. *Chilomastix mesnili* (lemon/pear shape) and Shepherd's crook
  - B. *Hymenolepis nana* and striated shell
  - C. *Wuchereria bancrofti* and sheathed microfilariae
  - D. *Plasmodium malariae* and "band trophozoite"
48. **Protozoan cysts were seen in a concentration sediment and tentatively identified as *Entamoeba coli*. However, the organisms were barely visible on the permanent stained smear because:**
- A. The organisms were actually not present in the concentrate sediment
  - B. There were too few cysts to allow identification on the stained smear
  - C. *E. coli* cysts were present but poorly fixed due to their impenetrable cyst wall
  - D. The concentrate and permanent stained smear were not from the same patient
49. **An immunosuppressed man has several episodes of pneumonia, intestinal pain, sepsis with gram-negative rods, and a history of military service in Southeast Asia 20 years earlier. The most likely cause is infection with:**
- A. *Trypanosoma cruzi*
  - B. *Strongyloides stercoralis*
  - C. *Naegleria fowleri*
  - D. *Paragonimus westermani*
50. **When staining *Cystoisospora belli* oocysts with modified acid-fast stains, the important difference between these methods and the acid-fast stains used for acid-fast bacilli (AFB) is:**
- A. The staining time is much longer with regular AFB acid-fast stains.
  - B. The decolorizer is weaker than acid alcohol used for AFB decolorizing.
  - C. A counterstain must be used for the modified methods.
  - D. The stain is more concentrated when staining for AFB.

51. **A 60-year-old Brazilian patient with cardiac irregularities and congestive heart failure suddenly dies. Examination of the myocardium revealed numerous amastigotes, an indication that the cause of death was most likely:**
- A. Leishmaniasis with *Leishmania donovani*
  - B. Leishmaniasis with *Leishmania braziliense*
  - C. Trypanosomiasis with *Trypanosoma gambiense*
  - D. Trypanosomiasis with *Trypanosoma cruzi*
52. ***Plasmodium vivax* and *Plasmodium ovale* are similar because they:**
- A. Exhibit Schüffner's dots and have a true relapse in the life cycle
  - B. Have no malarial pigment and multiple rings
  - C. Commonly have appliqué forms in the red cells
  - D. Have true stippling, do not have a relapse stage, and infect old red cells
53. **The incorrect match between symptoms and disease is:**
- A. Dysentery and amebiasis
  - B. Malabsorption syndrome and giardiasis
  - C. Cardiac involvement and chronic Chagas' disease
  - D. Myalgias and trichuriasis
54. **Eye infections with *Acanthamoeba* spp. have most commonly been associated with:**
- A. Use of soft contact lenses
  - B. Use of hard contact lenses
  - C. Use of contaminated lens care solutions
  - D. Failure to remove lenses while swimming
55. **The most common microsporidian infections originate in:**
- A. The lung
  - B. The nervous system
  - C. The gastrointestinal tract
  - D. Mucocutaneous lesions
56. **Organisms and infections that under normal conditions cannot be transmitted in the laboratory are:**
- A. *Taenia solium* – cysticercosis
  - B. *Ascaris lumbricoides* – ascariasis
  - C. *Cryptosporidium* spp. – cryptosporidiosis
  - D. *Enterobius vermicularis* – pinworm infection
57. **Key characteristics of infection with the fifth human malaria, *Plasmodium knowlesi* include:**
- A. Rapid erythrocytic cycle (24 h), will infect all RBCs, and can cause serious disease

- B. Erythrocytic cycle limited to young RBCs and causes a relatively benign disease
- C. The possibility of a true relapse from the liver, infection in older RBCs, and causes serious disease
- D. Extended life cycle (72 h), will infect all RBCs, and disease is similar to that caused by *Plasmodium ovale*

58. **Two helminth eggs that may resemble one another are:**

- A. *Diphyllobothrium latum* and *Paragonimus westermani*
- B. *Opisthorchis sinensis* and *Fasciolopsis buski*
- C. *Taenia saginata* and *Hymenolepis nana*
- D. *Ascaris lumbricoides* and *Trichostrongylus*

59. **The following organisms are linked with specific, relevant information. The incorrect combination is:**

- A. *Strongyloides stercoralis* – hyperinfection syndrome
- B. *Echinococcus granulosus* – hydatid sand
- C. *Toxoplasma gondii* – serology
- D. *Balantidium coli* – common in the United States

60. **Parasites that should be considered in a nursery school outbreak of diarrhea include:**

- A. *Endolimax nana*, *Giardia lamblia* (*G. intestinalis*, *G. duodenalis*), and *Entamoeba coli*
- B. *Giardia lamblia* (*G. intestinalis*, *G. duodenalis*), and *Cryptosporidium* spp.
- C. *Cryptosporidium* spp., and *Trichomonas vaginalis*
- D. *Pentatrichomonas hominis*, *Dientamoeba fragilis*, and *Endolimax nana*

CORRECT ANSWERS:

- 1. D
- 2. C
- 3. A
- 4. B
- 5. B
- 6. A
- 7. D
- 8. C
- 9. B
- 10. A
- 11. D
- 12. B
- 13. C
- 14. A
- 15. D
- 16. B
- 17. A
- 18. C

19. B
20. A
21. C
22. A
23. B
24. C
25. C
26. D
27. A
28. D
29. C
30. B
31. C
32. C
33. B
34. C
35. D
36. D
37. A
38. D
39. C
40. D
41. C
42. A
43. D
44. A
45. A
46. D
47. B
48. C
49. B
50. B
51. D
52. A
53. D
54. C
55. C
56. B
57. A
58. A
59. D
60. B