

species 3 _____ phylum _____

3. For FIVE (5) of the following, indicate in what kind of host animal and where in that animal you would expect to find each of the following (be as specific as possible, but common names for hosts are fine) (10 points)

a. Unsporulated oocysts of *Eimeria tenella*

host: site in host:

b. Promastigotes of *Leishmania tropica*

host: site in host:

c. Long slender trypomastigotes of *Trypanosoma brucei brucei*

host: site in host:

d. Oocysts of *Plasmodium vivax*

host: site in host:

e. Unsporulated oocysts of *Toxoplasma gondii*

host: site in host:

f. Trophozoites of *Entamoeba gingivalis*

host: site in host:

g. Hypnozoites of *Plasmodium falciparum*

host: site in host:

4. From the list that follows, circle the stages that, while potentially found in a host, are NOT infective to any host. (11 points)

Giardia duodenalis trophozoites

Balantidium coli cysts

Trichomonas vaginalis trophozoites

Nosema apis spores

Trypanosoma cruzi amastigotes

Leishmania tropica amastigotes

Plasmodium malariae ookinetes

Cryptosporidium sporulated oocysts

Plasmodium ovale gametocytes

Trypanosoma cruzi long slender trypomastigote

Toxoplasma gondii bradyzoites

5. Describe the pathology associated with THREE (3) of the following 5 parasitic diseases. In each case also identify the etiological agent of the disease. (12 points)

a. Malignant tertian malaria

Etiological agent:

Pathology:

b. Ich

Etiological agent:

Pathology:

c. Amoebiasis

Etiological agent:

Pathology:

d. Primary Amoebic Meningoencephalitis

Etiological agent:

Pathology:

e. Acute African Sleeping sickness

Etiological agent:

Pathology:

6. Each of the following statements is INCORRECT in one or more respects. Select FOUR (4) of the following 6 statements and REWRITE them so that the information they are attempting to convey is CORRECT; in each case all species and/or genera listed must remain in the statement (i.e., the statements cannot be corrected by removing taxa). (12 points)
- a. Whereas the sporozoites of *Eimeria* species are naked those of *Plasmodium* species are not, for they are packaged in sporocysts in oocysts.
 - b. Whereas the infections of *Entamoeba histolytica* and *Balantidium coli* can be diagnosed by looking for cysts in a faecal smear, that is not the case for infections of *Giardia lamblia* and *Trichomonas vaginalis*.
 - c. Whereas members of the Conoidasida possess an apical complex, members of the Aconoidasida do not.
 - d. Whereas infections of *Naegleria fowleri* are often fatal, those of *Plasmodium falciparum* and *Iodamoeba buetschlii* are not.
 - e. The two asexual reproductive phases exhibited by members of the phylum Apicomplexa are sporogony and gametogony.
 - f. Whereas the life cycles of *Trypanosoma brucei gambiense* and *Leishmania donovani* include amastigotes, the life cycle of *Trypanosoma cruzi* does not.
7. Describe how one would go about treating the disease caused by a protozoan parasite species of your choice. Be certain to indicate the name of the disease and its Etiological agent. (4 points)

8. For FOUR (4) of the following 6 statements, identify a protozoan GENUS that fulfills the criteria listed. (8 points)
- a. Includes trophozoites that possess an undulating membrane and an axostyle _____
 - b. Its trophozoites bear multiple nuclei and are found in the rectum of frogs _____
 - c. In combination, amastigotes of species in this genus occupy both superficial and deep tissue sites within their various vertebrate hosts _____
 - d. Includes heteroxenous species that use birds as their vertebrate hosts _____
 - e. Includes the species responsible for Texas Cattle Fever _____
 - f. Includes heteroxenous apicomplexans that produce zoitocysts in one or more of their vertebrate hosts _____
9. Identify TWO (2) heteroxenous parasite species and TWO (2) monoxenous parasite species that could complete their life cycles in one or more of the hosts listed in bold below. For each parasite species identify the required host(s) and also indicate ONE (1) life cycle stage that would be found in each host. (You may use a host species more than once but you may use only one subspecies of any parasite species.) (16 points)

Human, fish, cow, mosquito, earthworm, mouse, kissing bug, tse-tse fly, cat, chicken

- a. Heteroxenous parasite species 1:

Definitive host:	life cycle stage:
Intermediate host:	life cycle stage:
- b. Heteroxenous parasite species 2:

Definitive host:	life cycle stage:
Intermediate host:	life cycle stage:
- c. Monoxenous parasite species 1:

Host:	life cycle stage:
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- d. Monoxenous parasite species 2:

Host:	life cycle stage:
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10. For TWO (2) of the following 4 travelers provide the four pieces of information indicated below. (10 points)

- (i) Identify the protozoan species the individual is most likely to have acquired an infection with over the course of his or her adventure.
- (ii) Identify the type of sample you would require to verify your diagnosis.
- (iii) Identify the life cycle stage you would expect to find in that sample.
- (iv) Explain which aspect of the adventure described was most likely to have led to the infection.

a. This past summer Lafeu traveled to Brazil with Habitat for Humanity. The group's mission was to assist in the repair of housing in a remote Amazonian village that had been damaged during a recent flood. Their accommodations were relatively primitive. The area abounded in flying insects such as sandflies and mosquitoes; nightly visitors also included kissing bugs and bed bugs. When she returned from Brazil, Lafeu wasn't feeling so well. She experienced chills that regularly alternated with a high fever, which persisted for almost 48 hours, before the chills began again; she had no outward sign of lesions nor did she have cardiac issues.

- (i)
- (ii)
- (iii)
- (iv)

b. As part of an Entomology group field trip to western Africa, Amiens traveled to Nigeria where the group spent a fair amount of time collecting flies. In order to obtain as great a diversity of species as possible they spent half of their time collecting during the day and half of their time collecting at night. They were disappointed never to have encountered sandflies. When he returned home from the trip Amiens noticed a bite on his arm, but didn't think much of it until sometime later when he found himself becoming more and more tired and lethargic. He became alarmed when he began experiencing tremors.

- (i)
- (ii)
- (iii)
- (iv)

c. Little Dromio spent the summer with his cousin and his family on their farm in Nebraska. The boys spent many a fine day diving in the farm pond. Dromio's chores on the farm included helping to feed the chickens and also cleaning out the cattle pens. When Dromio returned to Connecticut at the end of the summer he was suffering from chronic diarrhea and abdominal cramps; but there was no sign of blood or fat in his stool.

- (i)
- (ii)
- (iii)
- (iv)

d. Nym spent the summer traveling around the United States and Mexico. The places she visited included a slum in Mexico City (where she consumed raw vegetables), the island of Nantucket (where she camped in the open air), and the mountains of Colorado (where she enjoyed a drink from a pristine stream). To assist with the expenses of her travels she spent time working on a very large pig farm in Georgia. When she returned from her trip she began to experience intestinal discomfort and diarrhea. Although her stool did not appear to be bloody, it was fatty and laden with mucus.

(i)

(ii)

(iii)

(iv)

11. For ONE (1) of the following 2 species, describe TWO (2) strategies that have been employed to control the parasite. Be sure to indicate which species you have selected. (4 points)

Trypanosoma brucei rhodesiense

Plasmodium vivax

Control strategy 1:

Control strategy 2: