

**Examination for Doctorate Degree of  
Parasitology (Paper II)**

**Course Title: Medical Parasitology**

**Date: 9-11-2021**

**Time Allowed: 3 hours**

**Total Assessment Marks: 360 MARKS**



**Tanta University  
Faculty of Medicine  
Department of  
Parasitology**

**Answer the following questions:**

**I. Write short notes on the following:**

**(90 marks, 15 each)**

1. Macrophage in parasitic infections.
2. Arthropod-borne viral infections.
3. High vector potential of ticks.
4. *Leishmania* vaccine.
5. The role of antiparasitic drugs in the treatment of covid19 (give examples and mechanism of action of each one).
6. How arthropod bites may induce one of the four types of hypersensitivity.

**II. Compare between the following:**

**(75 marks, 15 each)**

1. Parasitoid and pathogens.
2. Scabies and cutaneous myiasis.
3. Allergen and antigen.
4. Transcription and post transcription modification.
5. Principle of ELISA and that of Western blot techniques.

**III How does the global warming affect the parasites in different aspects.**

**(60 marks)**

**IV. Case:**

**(80 marks)**

**A 12-year-old boy was brought to the Emergency Department few hours after being stung by a brown colored spider inside the basement of his house. Examination of the stinging site revealed an extremely painful ischemic area with pallor, cyanosis, and erythema, creating marble plaque with hemorrhagic blisters.**

- 1) What is your diagnosis? what are criteria you relied on?
- 2) What is the prognosis if untreated?
- 3) How can you treat this case?

**V. Define (with examples) the following:**

**(25 marks, 5 each)**

1. Gene therapy.
2. Epigenetics.
3. Apoptosis.
4. Alpha-gal allergy.
5. Maggot therapy.

**VI. Choose the most suitable answer/ answers: (30 marks)**

**1. A female in menopause have a delusions that parasites crawling upon or burrowing into her skin. The case is likely diagnosed as:**

- a) Arachnophobia.
- b) Ectoparasitosis.
- c) Ekbom's syndrome.
- d) Entomophobia.

**2. Which is the arm of immunity triggered after exposure to insect saliva?**

- a) Th1.
- b) Th2.
- c) Classical complement pathway.
- d) A mix of T helper and double positive CD4/8 subsets.

**3. Allergic disorders are rare in helminth- endemic regions possibly due to which of the following?**

- a) Induction of Th2 immune response by helminths.
- b) Induction of Th1 immune response by helminths.
- c) Blocking of IgG by helminth antigens.
- d) None of the above.

**4. Which of the following arthropods is mostly the causative of Pancake syndrome (OMA) ?**

- a) *Blatta orientalis*.
- b) *Blomia tropicalis*.
- c) *Euroglyphus mynei*.
- d) *Lepisma saccharina*.

**5. Which of the following is NOT TRUE for Semiochemicals used in arthropod control?**

- a) Adversely affect natural enemies.
- b) Biologically active at very low concentration.
- c) Effective for mass trapping of female insects
- d) Harmless to the environment.

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**6. The difference of virulence of Entamoeba strains is most probably due to which of the following type of epigenetic regulation?**

- a) Histone methylation.
- b) Histone demethylation.
- c) DNA methylation.
- d) Histone acetylation.

**7. In flowcytometry, the side scatter represents which of the following?**

- a) Cell size.
- b) Cell granularity.
- c) A and B.
- d) None of the above.

**8. What is the causative arthropod of Mammalian Meat Allergy (MMA) ?**

- a) Arabian Fat-tailed scorpion, (*Androctonus crassicauda*).
- b) Brown Recluse Spiders (*Loxosceles reclusa*).
- c) Lone Star Tick (*Amblyomma americanum*).
- d) Storage mites (*Suidasia* spp.).

**9. Toll-like receptors are considered as a component of which of the following?**

- a) Innate immunity.
- b) Humoral immunity.
- c) Cellular immunity.
- d) T-B cell interaction.

**10. Regarding cellular immunity, which of the following statements is correct?:**

- a) CD3T cells are MHC I restricted.
- b) CD4T cells are MHC I restricted.
- c) CD4T cells are MHC II restricted.
- d) CD8T cells are MHC II restricted.

**Good luck**

Head of department: Prof. Dr. Howaida Ismail

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Examination for part II Doctorate Degree of  
Parasitology (Paper I)  
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**Answer the following questions:**

**I. Write short notes on the following:**

**(90 marks, 15 each)**

1. Ultrastructure of *Schistosoma* tegument.
2. The pathogenic parasites that attack the RES with the mode of infection of each one  
(Illustrate by a brain map).
3. Aims of parasite cultivation.
4. Multiplex PCR (principle and its role in parasitic infections).
5. Nitazoxanide (indications and mechanism of action).
6. Behavior- altering parasites (give examples).

**II. Explain the following statements:**

**(75 marks, 15 each)**

1. Anisakiasis is an example of parasite- induced immunopathology.
2. The trypomastigotes of African trypanosomes may be monomorphic (only long slender).
3. Evolution of host tolerance can save existence of both host and parasite.
4. Ectopic lesions may be encountered after ingestion of some parasitic infective stages.
5. Treatment options in cystic echinococcosis may be affected by several factors.

**III. Imaging techniques can play an important role in both, diagnosis and management of some parasitic infections.**

**(30 marks)**

**IV. Highlight the differential diagnosis for the parasitic causes of the following:**

**(40 marks, 10 each)**

1. Visceral leishmaniasis.
2. Acute fascioliasis.
3. Tropical pulmonary eosinophilia.
4. Intestinal amoebiasis.

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**V. Case:**

**(70 marks)**

A 28-year-old German patient presented at the Eye Clinic with a painful localized swelling of the bulbar conjunctiva of the right eye, accompanied by severe episcleral and conjunctival hyperemia. The swelling, mimicking a nodular scleritis, had developed two months before. It subsequently increased in size, became painful, and did not change under local and systemic steroids. The patient had travelled to Tunisia and Turkey since a year. Slit lamp examination revealed a subconjunctival mass that after careful excision appeared to be an inactive nematode worm. Microscopic examination showed *Microfilariae* with slightly bent body, about 100  $\mu\text{m}$  long. Its anterior end rounded, and tail end pointed.

- 1) What is your provisional diagnosis? what are criteria you relied on?
- 2) How can you treat this case?
- 3) Enumerate parasites causing migrating skin nodule.

**VI. Define (with examples) the following:**

**(25 marks, 5 each)**

1. Unstable malaria.
2. Paleoparasitology.
3. Dapaong tumor.
4. Concomitant parasitic infection.
5. Metacystode.

**VII. Choose the most suitable answer (one choice only):**

**(30 marks)**

1) Meningitis most probably complicate infection with which one of the following?

- a. *Necator americanus*.
- b. *Strongyloides stercoralis*.
- c. *Capillaria philipinensis*.
- d. *Trichinella spiralis*.

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2) Which of the following is NOT TRUE regarding *Entamoeba moshkovskii*?

- a. It morphologically resembles *Entamoeba histolytica*.
- b. It can persist outside its host as a free-living amoeba.
- c. It causes meningoencephalitis.
- d. It can tolerate low temperature.

3) Which of the following is TRUE regarding *Plasmodium knowlesi*?

- a. It causes quartan malaria.
- b. It has a band-shaped trophozoite.
- c. It invades only Duffy -ve RBCs.
- d. It has a ring stage similar to that of *Plasmodium ovale*.

Which of the following parasites most probably cause congenital hepatosplenomegaly?

- a. *Trypanosoma cruzi*.
- b. *Plasmodium falciparum*.
- c. *Plasmodium knowlesi*.
- d. *Leishmania peruviana*.

5) Which one of the following substances is attractive to *Schistosoma cercariae*?

- a. Lysine.
- b. Lypopolysaccharide.
- c. Arginine.
- d. Serine.

6) Which one of the following is most likely a complication of infection with *Metagonimus yokogawi*?

- a. Generalized edema.
- b. Malabsorption.
- c. Hemorrhagic enteritis.
- d. Cardiac insufficiency.

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7) Leishmanization occurs through injection of materials retrieved from *L. major* promastigotes by which of the following methods?

- a. Intraperitoneally.
- b. Subcutaneously.
- c. Intradermally.
- d. Intravenously.

8) Aestivation means which one of the following?

- a. Large snails shed more cercariae than small ones.
- b. Snails of schistosomes may self- cure and egg laying return to normal.
- c. Ability of aquatic snails to live out of water for weeks.
- d. None of the above.

9) Which one of the following statements is TRUE regarding *Blastocystis hominis*?

- a. It is able to grow on fungal media.
- b. It is present in 2 forms only.
- c. Trichrome stain is used to diagnose *Blastocystis hominis*.
- d. Mebendazole is effective in treating resistant cases of *Blastocystis hominis* infection.

10) The following may be dead-end hosts, EXCEPT which of the following?

- a. Human for *Anisakis*
- b. Human for *Toxoplasma*
- c. Rodents for *Angiostrongylus cantonensis*
- d. Deer for *Babesia* species

**Good luck**

Head of department:

Prof. Dr. Howaida Ismail