

Final Semester Examination 1st part For Doctorate Degree of
Parasitology
Course Title: Medical Parasitology
Date: 24 -8-2021
Time Allowed: 3 hours
Total Assessment Marks: 90 MARKS



Tanta University
Faculty of Medicine
Department of
Medical Parasitology

All questions must be answered.

I. "Helminths are masters of immunomodulation". **Justify this statement and discuss the underlying mechanisms and the practical implications.**(10 marks)

II- **Discuss briefly the following:** (20 marks)

- 1) Immunotherapy of cryptosporidiosis in immunocompetent and immunocompromised patients.
- 2) Mechanisms of epigenetics.
- 3) Different subsets of T lymphocytes.
- 4) Assessment of B cell competence.

III- **Explain the following statements:** (10 marks)

- 1) Difficulty of development of antiparasitic vaccines.
- 2) Persistent high levels of IgM in some parasitic infections.
- 3) Real time PCR is superior to the conventional PCR in the diagnosis of some parasitic diseases.
- 4) Immunodiagnosis plays an important role in the diagnosis of parasitic infections.

IV- **Compare between the following:** (25 marks)

- 1) Direct and indirect ELISA.
- 2) Macrophage and neutrophil.
- 3) Genetic drift and gene flow.
- 4) Primary and secondary immunodeficiency.
- 5) Southern and western blotting.

V- Define (with examples, if possible):

(10 marks)

- 1) Anaphylaxis.
- 2) Multiplex PCR.
- 3) Monoclonal antibodies.
- 4) Central tolerance.
- 5) Superantigens.

VI- Choose the correct answer:

(15 marks)

1- Which of the following is true regarding reverse transcriptase PCR?

- A) mRNA is used as a template to form cDNA
- B) RNA is used as a template to form DNA
- C) DNA is used as a template to form SSDNA
- D) All of the above

2- The following factors enhance the induction of tolerance EXCEPT:

- A) Immunosuppressive drugs
- B) Complex antigenic structure
- C) Very high doses of antigen
- D) Continuous presence of antigen

3- Sexual dimorphism is most often a result of:

- A) Pansexual selection
- B) Stabilizing selection
- C) Intrasexual selection
- D) Intersexual selection

4- Which of the following is involved in the pathogenesis of tropical pulmonary eosinophilia?

- A) Type I hypersensitivity reaction
- B) Type IV hypersensitivity reaction
- C) Type III hypersensitivity reaction
- D) All of the above

5- Immunoglobulin classes are distinguished by the type of :

- A) Variable region in the light chain they possess
- B) Constant region in their light chain
- C) Heavy chains they possess
- D) None of the above

6- Which of the following can be used to reduce hepatic fibrosis in mice infected by *Schistosoma mansoni*?

- A) IL- 12 inhibitor
- B) IL- 13 inhibitor
- C) IL- 4
- D) None of the above

7- The antigen-antibody reaction in which the antigen is particulate is called:

- A) Agglutination
- B) Coomb's test
- C) Precipitation
- D) None of the above

8- Which of the following is true regarding phylogenetic study of the parasite?

- A) It builds a "relationship tree" that shows the probable evolution of various organisms
- B) It is the study of large and small subunits of RNA ribosomal ribonucleic acid sequences by PCR
- C) It is a taxonomic classification
- D) All of the above

9- The type of histone linker of the DNA is:

- A) H2A
- B) H2B
- C) H3
- D) H1

10- In modern terminology, diversity is understood to be a result of genetic variation. Which of the following is a recognized source of variation for evolution?

- A) Mistakes in translation of structural genes
- B) Mistakes in protein folding
- C) Marked changes to the dictionary of the genetic code
- D) Binary fission
- E) Recombination by crossing over in meiosis

11- Individuals with impaired cellular immunity are particularly susceptible to infection with:

- A) *Staphylococcus aureus*
- B) *Streptococcus pyogenes*
- C) *Listeria monocytogenes*
- D) *Escherichia coli*
- E) *Giardia lamblia*

12- Allergic diseases are rare in helminth-endemic regions possibly due to:

- 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

13- Regarding the primary and secondary immune responses which one of the following statements is most accurate?

- A) The IgM in the primary immune response is made by memory B cells
- B) The lag phase is shorter in the primary response than in the secondary response
- C) In the primary response memory B cells are produced but memory T cells are not
- D) The amount of IgG made in secondary response is greater than those made in the primary response

- A) Th3
- B) Foxp3 + T cells
- C) Natural killer cells
- D) All of the above

15- In those parts of equatorial Africa where the malaria parasite is most common, the sickle-cell allele constitutes 20% of the β hemoglobin alleles in the human gene pool. In the United States, the parasite that causes malaria is not present, but African-Americans whose ancestors were from equatorial Africa are present. What should be happening to the sickle-cell allele in the United States, and what should be happening to it in equatorial Africa?

- A) stabilizing selection; disruptive selection
- B) disruptive selection; stabilizing selection
- C) disruptive selection; directional selection
- D) directional selection; disruptive selection
- E) directional selection; stabilizing selection

BEST WISHES

Chairman of Department

