	Final term Exam January 2025	جامعة دمياط Damietta University
Department: Zoology	**Major:** رابعة بيولوجيا جزيئية	**Course Title:** طفيليات ومناعة
Code number: 401 Z	**Mark: 90**	**Date: 30 / 12 / 2024**
Time: 2 Hours	الإمتحان في 4 صفحات	

PART ONE: PARASITOLOGY (45 Marks)

Question One: (25 Marks, 2.5 marks for each)

1- What is parasitism and how is it related to symbiosis?
2- Compare the difference between trophozoites and cysts in protozoa?
3- What is a zoonosis?
4- Compare the difference between endemic and enzootic infection?
5- Analyze the difference between prevalence and incidence?
6- Detect the factors that determine the development of disease?
7- Identify the incubation period?
8- Detect the first line of defense against invading parasites in vertebrates?
9- What is a parametric approach in parasitology?
10- What is treatment in parasitology?

Question Two: (20 Marks)

A- Choose: (10 marks, 2 marks for each)

1	How do parasites view their hosts?	
A) As a source of nutrients		B) As a colony of individuals
C) As a large ecosystem		D) As a landscape to be colonized

2	Which of the following is a method of modifying the environment to control parasites?	
A) Separating host age classes		B) Removing garbage and draining standing water
C) Toxicants		D) Vaccinations

3	What is a vector?	
A) An organism that transmits a pathogen		B) A type of virus
C) A type of membrane		D) A type of cell

4	What are the types of host specificity?	
A) Supra-specific and infra-specific		B) Cellular-specific and organ-specific
C) Speciation-specific and evolution-specific		D) Preliminary-specific and final-specific

5	Which of the following is a way that parasites attract the host to the parasite?	
A) Change of habitat		B) Brightly colored
C) Chemical attractant		D) Part of food chain

B- Right or False: (10 marks, 2 marks for each)

1	Parasites can complete their life cycles in any type of environment. (…)
2	Protozoa can be transmitted horizontally and vertically. (…)
3	All parasites have either horizontal or vertical transmission. (…)
4	Populations of K-strategists are usually at or near the carrying capacity of their environment. (…)
5	Rapid molecular and biochemical tests are being developed to replace traditional methods. (…)

PART TWO: IMMUNOLOGY (45 Marks)

QUESTION ONE:

Complete the flowing sentences. (15 Mark, 1 each)

1. The immune system is divided into two functional divisions, namely the ..... and ..... immune systems consisting of a variety of ..... and ..... distributed throughout the body.
2. All the cells of immune system arise from pluripotent stem cells through two main lines of differentiation, ... progenitor which produces ..... and ..... progenitor which produces ..... and other cells.
3. T and B lymphocytes carrying specific ..... receptors, T-cells differentiate initially in ..... whilst ..... differentiate in fetal liver, spleen and in adult mammals in the .....
4. Phagocytes have two main functions performed by two different cell types, the professional ..... whose predominant role is to ..... particulate antigens and ..... whose role is to ..... to specific antigen sensitive lymphocytes.
5. Cells of the immune system are organized into ..... & ..... to perform their functions most effectively. These cells which accurately and specifically recognize and detect the ..... on microorganisms and ..... those foreign organisms.
6. The lymph node is responsible for ..... antigens from tissue fluid or lymph as it travels from the periphery to the ..... Whereas, spleen contains two main types of tissue, the ....., which is mainly concerned with the destruction of the effete erythrocyte and the .....for immune functions.
7. Inflammation is the body's ..... to an injury such as an invasion by an infectious agent, three major things occur during this response; an ..... blood supply, increased capillary ....., and leucocytes ..... towards the site of infection.
8. The serum concentration of C-reactive protein which is one of the ..... proteins ..... rabidly during infections. It is bound to bacteria and promotes the ..... which facilitates their uptake by .....
9. ..... is produced by ..... cells and sometimes also by lymphocytes, it ..... Natural killer (NK) cells and induce a state of resistance to ..... in uninfected tissue cells.
10. In human MHC is found on chromosome ..... referred to as ....., whereas in mice MHC is found on chromosome ..... (H-2 complex). MHC participate in both humoral and .....
11. MHC molecules recognize only ....., their products play a role in intracellular ....., and ..... between self and non-self and act as antigen .....
12. Class I MHC molecules present on the surface of ..... cells except nervous tissue

and ....., whereas .....are constitutively expressed only by certain .....

13. An antibody, is a large Y- shaped protein produced by B-lymphocytes or ....., act as ..... between ..... and phagocytes. That is used by the immune system to ..... pathogens.
14. The antibody recognizes a unique molecule of the pathogen, called an ....., via the ..... region. Each tip of the "Y" of an antibody contains a ..... that is specific for one particular ..... on an antigen.
15. Antigen-antibody reaction is a specific chemical ..... between antibodies and antigens during immune reaction. .....refers to the ..... of binding between a single antigenic determinant and an individual antibody combining site. ..... is more than the sum individual affinities.

QUESTION TWO:

A- Choose the most suitable answers. (21 Mark, 1 each)

1. Which of the following are two hallmarks of the adaptive immune system?

A	Immediate and Broad	C	Immediate and Passive
B	Specificity and Memory	D	Non-specific and Fast

2. What happens to lymphocytes after they bind to their specific antigen?

A	They become skin cells	C	They disappear
B	They proliferate and mature	D	They stay the same

3. The process of clonal selection results in the creation of what?

A	Antibodies	C	Hair cells
B	New digestive enzymes	D	Clones that can become effector or memory cells

4. What type of cells do T and B lymphocytes become after they are activated?

A	Red blood cells	C	Effector and memory cells
B	Muscle cells	D	Skin cells

5. The Waldeyer's ring is found in the:

A	Neck and throat area	C	Small intestine
B	Lower abdomen	D	Thoracic cavity

6. Which of the following is NOT considered a secondary lymphoid organ?

A	Spleen	C	Red bone marrow
B	Tonsils	D	Peyer's patches

7. Which lymphoid structure in human filters lymph fluid and contains both T and B cells?

A	Bone marrow	C	Thymus
B	Peyer's patches	D	Lymph nodes

8. ..... cells that found in mucous membrane and connective tissue they are important in wound healing.

A	T lymphocytes	C	NK cells
B	Mast cells	D	B lymphocytes

9. ..... are leucocytes capable of recognizing cell surface changes on virally infected cells

A	T lymphocytes	C	NK cells
B	Mast cells	D	B lymphocytes

10. Which cells are responsible for processing antigens into immunogenic units?

A	T-helper cells	C	Macrophages
B	Plasma cells	D	Memory B cells

11. Hapten require a carrier molecule to:

A	Increase their antigenicity	C	Trigger immune response

B	Be recognized by T-cells	D	Bind directly to B-cell receptors

12. What type of immune response is triggered by free antigens in the blood?

A	Cellular response	C	Innate immune response
B	Humoral response	D	Inflammatory response

13. In the secondary antibody response, compared to the primary response:

A	IgM appears before IgG	C	The antibody titer is higher
B	The antibody titer is higher	D	T-cell involvement is reduced

14. Which cells provide long-term immunity by remembering past infections?

A	Plasma cells	C	Natural Killer cells
B	Cytotoxic T cells	D	Memory B cells

15. T-dependent antigens require:

A	Only B cells for activation.	C	High antigen concentrations to activate B cells.
B	Both T cells and B cells for an immune response.	D	No antigen recognition by T cells.

16. Which antibody class is primarily produced during the second infection with T-independent antigens?

A	IgM	C	IgE
B	IgA	D	IgG

17. The process of affinity maturation is associated with:

A	Higher antibody specificity over time.	C	Both A and B.
B	Switching from IgM to IgG production.	D	Neither A nor B.

18. Which of the following is a characteristic of T-independent antigens?

A	They are large polymeric molecules with repeating antigenic determinants.	C	They require MHC presentation for activation.
B	They produce strong memory responses.	D	They are rapidly degraded in the body.

19. What enhances immune responses to antigens in vaccines?

A	High antigen doses	C	IgM-only responses
B	Adjuvants	D	IgM-only responses

20. High antigen doses result in:

A	Better affinity maturation and stronger responses.	C	Suppression of all immune responses.
B	Poor affinity maturation and lower-quality responses.	D	No effect on the immune system.

21. The functions of the lymphoid system are: -

A	Absorb fats from the small intestine.	C	Defend against microbes and foreign substances.
B	Maintain the fluid balance in tissues.	D	All of the above

B- Answer the following questions. (9 Mark, 3 each)

1. Indicate the structure of a lymph node?
2. How the structure of antibody fits its functions?
3. Summarize the actions of complement and its role in the acute inflammatory reaction?

"End Exam" *"With Best Wishes"*

Prof. Dr. Ola Abu Samak *Prof. Dr. lofty Habak* *Dr. Basma Sheta*

Head of Department Prof. Ayman M. Hyder