



**Question One:**

**10 Marks**

Put the sign (✓) against the right sentences and the sign (✗) against the wrong sentences

1. ( ) Humoral immunity is responsible for **antibodies production**.
2. ( ) CD4<sup>+</sup> T cells binds to **MHC class I** on antigen-presenting cells.
3. ( ) CD8<sup>+</sup> is a marker of **T-helper cells**.
4. ( ) Immunoglobins IgA are associated with **allergic and hypersensitivity** responses.
5. ( ) Primary lymphoid organs include **lymph nodes**.
6. ( ) NPH insulin is a **clear intermediate-acting insulin**.
7. ( ) All Antigens are **immunogens** as they can trigger immune response.
8. ( ) Presence of aggregates is a **major cause of immunogenicity** of human therapeutic proteins.
9. ( ) Thymus- independent antigens **induce immunological memory cells**.
10. ( ) Reverse vaccinology involves the **analysis of genome sequences of pathogens in silico** with the aim to identify potential antigen.

**Question Two:**

**14 Marks**

Choose the correct answer and encircle it.

1. **C-peptide of human insulin is:**
  - A. A part of mature insulin molecule
  - B. Responsible for formation of disulphide bridges
  - C. Removed during maturation of pro-insulin to insulin
  - D. Responsible for its biological activity
2. **Individuals with type I diabetes:**
  - A. lack β cells in the islets of Langerhans.
  - B. produce enough insulin but lack functional receptors on their cells.
  - C. can control their diabetes with diet and exercise.
  - D. All of these are correct.
3. **The epitope is:**
  - A. Part of the antibody that binds to the antigen.
  - B. Part of the antibody that binds to the T helper cell.
  - C. Part of the antigen that is bound by the antibody.
  - D. Part of the hypervariable region of the antibody.
4. **Which of the following cell types is not considered a professional antigen-presenting cell?**
  - A. Macrophage
  - B. Neutrophil
  - C. B cell
  - D. Dendritic cell
5. **Immunological unresponsiveness to self antigens is called:**
  - A. ADCC
  - B. Tolerance
  - C. Memory
  - D. Acquired immunity



Course No: BIPH 2315  
Course Title: Pharm. Biotech.  
Date: 21/04/2018  
No. of Questions: (4)  
Time: 1 hours  
Using Calculator (No)

Second Middterm Exam For  
2<sup>nd</sup> Semester.  
2017/2018  
Total Grade:

Instructor Name: Dr. Iyad ALQOUQA  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: \_\_\_\_\_  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

**6. The secondary, but not the primary, immune response is based on:**

- A. Memory cells
- B. Complement activation
- C. Mast cell degranulation
- D. Clonal selection

**7. What term is defined as the ability of a test to detect minimal concentrations of an antigen or antibody?**

- A. Serology
- B. Specificity
- C. Sensitivity
- D. Titer

**8. Antibody titer refers to the:**

- A. Absolute amount of specific antibody.
- B. Affinity of specific antibody.
- C. Concentration of specific antibody.
- D. Highest dilution of antibody still able to give a positive result in a test system.

**9. The process of weakening pathogen is called:**

- A. Vaccination
- B. Attenuation
- C. Immunization
- D. Sensitization

**10. A vaccine can be:**

- A. An antigenic protein
- B. Weakened pathogen
- C. Live attenuated pathogen
- D. All of the these

**11. What is one disadvantage of using attenuated vaccines?**

- A. They require fewer doses than other types of vaccines.
- B. They provide long-lasting protection.
- C. They produce an infection following vaccination.
- D. The organisms can mutate back to a virulent form following vaccination.

**12. Why is using an adjuvant in a vaccine preparation advantageous?**

- A. It prevents pain during the injection.
- B. It enhances the immunogenicity of the antigen.
- C. It helps prevent back-mutations of attenuated microbes.
- D. It prevents local reactions at the injection site.

**13. Opsonization:**

- A. is the killing of target cells by cytotoxic T cells.
- B. is the secretory component of IgA.
- C. helps increase phagocytosis.
- D. is the interaction that allows IgG to cross the placenta.



Course No: BIPH 2315  
Course Title: Pharm. Biotech.  
Date: 21/04/2018  
No. of Questions: (4)  
Time: 1 hours  
Using Calculator (No)

University of Palestine



Second Middterm Exam For  
2<sup>nd</sup> Semester.  
2017/2018  
Total Grade:

Instructor Name: Dr. Iyad ALQOUQA  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: \_\_\_\_\_  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

---

---

**Question Four:**

**8 Marks**

- A. Lantus®, a long-acting insulin, shows protracted time-action profiles. Why? then Explain why this type can not be mixed with other fast-acting insulins.**
- B. What are the characteristics of the ideal vaccine? Mention at least three types of classical and modern vaccines?**
- C. How do antibodies mediate protection against infection or disease?**
- D. Give one advantage and one disadvantage of RNA vaccines over DNA vaccines.**

**End of Questions— *Good Luck***