

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF DIPLOMA IN ANIMAL HEALTH AND PRODUCTION**

**ANHE 0228: BASIC IMMUNOLOGY AND VACCINES**

**STREAMS: DIP. ANHE**

**TIME: 2 HOURS**

**DAY/DATE: TUESDAY 06/08/2019**

**2.30 P.M. – 4.30 P.M.**

**INSTRUCTIONS:**

- **Answer ALL questions in section A and any 2 in section B**

**SECTION A (30 MARKS)**

- (a) Name any 2 scientists who contributed to immunology and give one discovery for each. (2 marks)
  - (b) Explain the following terms
    - (i) Lymphatic system (2 marks)
    - (ii) Natural killer cells (2 marks)
    - (iii) Haptens (2 marks)
    - (iv) Adjuvants (2 marks)
- (a) List 3 secondary lymphoid organs and state the functions of each. (3 marks)
  - (b) Outline and briefly state the functions of 7 innate barriers to infection. (7 marks)
  - (c) State giving respective examples 4 routes of administration of vaccines in poultry. (2 marks)
- Differentiate the following;
  - (a) Innate and adaptive immune system (2 marks)
  - (b) Leucocytes and Lymphocytes (2 marks)
  - (c) The two types of immunodeficiency (4 marks)

**SECTION B (40 MARKS)**

4. (a) Clearly describe the adaptive immune system giving examples. (6 marks)
- (b) Discuss the functions of T lymphocytes (4 marks)
- (c) Outline any 5 features of immunoglobulin G. (5 marks)
- (d) Explain the mechanism of protein by antibody-antigen reactions. (5 marks)
5. (a) Differentiate the various types of vaccines preparation using examples in animals. (8 marks)
- (b) Draw the structure of the spleen explaining its location in bovines. (5 marks)
- (c) What could be the reason of a persistent flu infection in animals? (5 marks)
- (d) Describe the structure of a lymph node. (2 marks)
6. (a) Write short notes on
- (i) Type 1 hypersensitivity (10 marks)
- (ii) lymphocytes (7 marks)
- (b) Which three ways you would use to know if an antigen-antibody reaction has occurred. (3 marks)
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