



**JARAMOGI OGINGA ODINGA UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
SCHOOL OF HEALTH SCIENCES**

**UNIVERSITY EXAMINATION FOR BACHELOR IN COMMUNITY  
HEALTH AND DEVELOPMENT**

**2<sup>ND</sup> YEAR 1<sup>ST</sup> SEMESTER 2013/2014 ACADEMIC YEAR**

**CENTER: BUSIA**

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**COURSE CODE:** HCD 3212  
**COURSE TITLE:** INTRODUCTION TO VIROLOGY  
**EXAM VENUE:** STREAM:  
**DATE:** EXAM SESSION:

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**Instructions:**

- 1. Answer ALL questions in Section A and ANY other 2 questions in Section B.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**Answer ALL questions in Section A (30 marks)**

1. Define the term **PRIONS**. Name at least diseases that are associated with prions in vertebrates (**3 marks**).
2. Viruses have a complex life cycle. For example outside host living cells viruses are inert, however, once they enter a host cell, viral nucleic acid becomes active resulting in multiplication. State 3 important steps necessary for a successful viral infection to occur (**3 marks**).
3. Define the term latent viral infections. Give 2 specific examples of latent viral infections in humans (**3 marks**).
4. Viral infections sometimes cause death to the affected cells. List three ways on how viral infection can result in the host cell death (**3 marks**).
5. Some viral infections usually remain in equilibrium with the host for a long time without producing any detectable disease. Name virus that can remain latent in human body for long time and the resultant disease the cause. (**3 marks**).
6. Define the term herd immunity. Name one immunisable infectious viral disease that does not confer herd immunity and its mode of transmission (**3 marks**).
7. Define the term oncogenes. List at least two characteristics that are associated with oncogenic viruses (**3 marks**).
8. Describe the mode of transmission of the following viral infections;
  - A. Influenza B virus
  - B. Influenza A virus
  - C. Ony'ong'o virus (**3 marks**)
9. Name at least three emerging Viral hemorrhagic fevers (VHFs) that have recently been associated with causing disease in humans. What are their natural reservoirs in the wild? (**3 marks**).
10. HIV/AIDs infections occur Worldwide. Based on the most recent HIV virus genomic sequencing it has been shown that there are several distinctive groupings called Clades of the virus that are found in different parts of the world. Name the most dominant Clade of HIV that is found Worldwide. What is the genus of the virus that causes HIV/AIDS (**3 marks**).

**SECTION B: ANSWER ANY TWO QUESTIONS (40 marks)**

1. Using relevant examples discuss the general viral control using the following methods;
  - A. Chemotherapy (**5 marks**)
  - B. Sanitation (**5 marks**)
  - C. Immunoprophylaxis (**5 marks**)
  - D. Vector control. (**5 marks**)
  
2. Describe the difference between Lytic and Lysogenic cycles in viral replication. Describe stepwise the 5 main steps of the Lytic cycle as exemplified by *T. even* Bacteriophage replication (**20 marks**).
  
3. Measles which is also known as rubeola is an extremely contagious viral infection that is common among children in endemic areas.
  - A. Describe the specific virus that causes measles (**3 marks**)
  - B. Describe the symptoms and diagnostic features of measles infection (**6 marks**)
  - C. What are the risk factors and complications that are associated with measles infection (**7 marks**)
  - D. Describe treatment and prevention of measles (**4 marks**).
  
4. Describe the general procedures of growing animal virus in the laboratory using the following procedures.
  - A. Using embryonated eggs (**4 marks**)
  - B. Using living animals (**4 marks**)
  - C. Using continuous cell cultures. (**4 marks**)
  - D. Outline the main principles of viral identification using Polymerase Chain Reaction (PCR) technique (**8 marks**)