

**UNIVERSITY EXAMINATION  
JARAMOGI OGINGA ODINGA UNIVERSITY (BUSIA LEARNING CENTRE)**

**COURSE CODE HCD 3212: INTRODUCTION TO VIROLOGY**

**Answer ALL questions in Section A and ANY TWO questions in Section B**

**Section A 30 Marks**

1. A newborn female developed extensive vesicular and ulcerative lesions over her face and chest.
  - a) What is the most likely cause of her symptoms?
  - b) How would you determine the viral cause of this disease without doing a viral culture (**3 marks**).
2. Give three reasons each for and against the classification of viruses as living organisms (**3 marks**).
3. List at least one virus that are commonly implicated in the cause of the following infections
  - a) Infections of the upper respiratory system (the common cold)
  - b) Infection of the lower respiratory system (Viral pneumonia)
  - c) Mumps (**3 marks**).
4. List any three important differences between hepatitis A and B viruses: (**3 marks**).
5. State three important characteristics that are associated with tumor cells (**3marks**).
6. State 3 important steps that are necessary for a successful viral infection to occur (**3 marks**).
7. Define the term *arbovirus*? List two examples of arboviruses and the disease that they cause in humans (**3 marks**).
8. In modern virology, viruses can be identified and characterized by using various methods. One the common method used in research is polymerase chain reaction (PCR). List at least three essential requirements of PCR. (**3marks**).
9. Define the term prion, give at least two examples of diseases that are caused by prions (**3 marks**).
10. Explain how viral infections were recognized before the invention of the electron microscope (**3 marks**).

**SECTION 2. ANSWER ANY TWO QUESTIONS (40 marks)**

1. a) Define the term **Cytopathic** effect in relation to viral infections? What are the end results of cytopathic effects? Give three reasons why viral infections results into cytopathic effects (**10 marks**).

b) List at least one cytopathic effect that is caused by infection with each of the following viruses: Poliovirus (*Enterovirus*), Measles virus (*Morbillivirus*), Herpes simplex viruses, Oncogenic viruses and HIV (*Lentivirus*) (**10 marks**).

2. a) Define the term active **Immunoprophylaxis**? Describe the three major active immunoprophylaxis that are used in humans (**10 Marks**).

b) Describe the five major differences that are used to distinguish between DNA and RNA Viruses (**10 Marks**).

3. Describe the four main morphological shapes that are used to classify viruses into families. Give one example each of a virus from each morphological category and their medical importance (**20 marks**).

4. Write short notes on each of the following:

a) Interferons (**5 marks**).

b) Passive immunity (**5 marks**).

c) Rota viruses (**5 marks**).

d) Lytic cycle (**5 marks**).