MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

THIRD YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF MEDICAL LABORATORY SCIENCE AND MEDICAL BIOTECHNOLOGY WITH INFORMATION TECHNOLOGY

(MAIN CAMPUS)

PMB 323: MEDICAL VIROLOGY

Date: 14th July 2014 *Time: 8.30 – 10.30 am*

INSTRUCTIONS:

- Answer ALL questions in section A.
- Answer question ONE and ANY OTHER question in section B.

Section A (Answer all question)

1. a) What is a virion? Describe its main function? (2marks)

   b) Why are viruses difficult to target for chemotherapy? (2 marks)

2. Outline five factors by which viruses are classified into families. (5 marks)

3. Define the following terms: (5 marks)

   a). Monopartite genome
   b). Multipartite genome
   c). Productive infection
   d). Monocistronic gene
   e). Defective virus

4. Describe how an acute viral infection can be determined in the laboratory using an antibody assay. (4 marks)

5. With the aid of a diagram describe the reproductive cycle of a virus including the various phases involved. (6 marks)

6. Outline the differences in clinical presentation between flu and common cold. (4 marks)

7. With the aid of a diagram describe recombination by independent assortment. (10 marks)

8. State the four approaches to confirming a viral infection in the laboratory. (2 marks)

Section B (Answer question one and one other question)

1. a) Briefly describe the possible phases of life cycle of a virus that can be targeted by potential therapeutic agents. (10 marks)

   b) Describe the mode of action and use of Zidovudine in antiretroviral therapy. (5 marks)

2. a) What are the beneficial effects of antibody response against viral infections? (10 marks)

   b) Briefly describe the mechanisms by which macrophages limit viral infections. (5 marks)

3. a) With the aid of diagrams, describe the replication strategy employed by retroviruses. (10 marks)

   b) State the three mechanisms of viral penetration of host cells? (3 marks)

   c) What are the advantages of a plus (+) strand RNA genome over a minus (-) strand RNA genome in terms of viral replication. (2 marks)