



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY (BIMB)

YEAR II SEMESTER II

AAB 4205: VIROLOGY PAPER 1

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

Do not write on the question paper.

Question ONE

Question 1 is **compulsory**. Answer any **TWO** questions from questions 2-5.

Illustrate your answers with diagrams and give examples where appropriate

Q1a) Complete the following virological abbreviations {6}

- | | |
|----------|---------|
| i) RNA | iv) CD4 |
| ii) DNA | v) HSV |
| iii) CMV | vi) ART |

b) Distinguish;

i) One step growth curve and typical growth curve {3}

ii) Antigenic drift and antigenic shift {3}

c) Viruses cannot replicate in synthetic media and require living cells for their growth,

i) List **THREE** living systems that are commonly used for cultivation of animal viruses.

{3}

ii) Describe techniques that can be used to ensure that the system adopted for virus cultivation is free from bacteriological contamination {3}

d) Diagram the Two major types of virus symmetry {4}

- e) Outline the guidelines of nomenclature for viruses {4}
- f) Describe congenital viral infections and name 2 viruses transmitted via this route {4}

Question TWO

- a) A needle that has been used on a patient accidentally stabs a hospital worker. Describe how you would determine whether or not the worker was infected by HBV as a result of the incidence. {5}
- b) Describe the use of CPEs in the identification of viruses. {10}
- c) List five advantages of attenuated vaccines. {5}

Question THREE

- a) 'Virus multiplication is cyclic' Discuss. {14}
- b) Identify the points within the cycle that are targets of antiviral. {6}

Question FOUR

- a) Explain the following tissue culture techniques:
- i) Fragment cultures {4}
 - ii) Cell cultures {6}
 - iii) Organ cultures {4}
- b) Describe TWO other systems in which viruses may be cultivated {6}

Question FIVE

- a) Outline three characteristics of viruses that demonstrate their difference from other life forms {5}
- b) Discuss the characteristics of viruses used in their taxonomy. {15}