



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
TECHNOLOGY IN APPLIED CHEMISTRY
BTAC

AAB 4205: VIROLOGY

SEMESTER EXAMINATION

DECEMBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

QUESTION ONE

- a) (i) Describe virus classification as forwarded by Baltimore **(7marks)**
- (ii) Explain the formation of helical structure of viruses **(4marks)**
- b) (i) Explain with Illustration the steps taken by virus particle to establish itself into host cell. **(6marks)**
- (ii) State any **TWO** methods of transmission of plant viruses **(2marks)**
- c) (i) Identify any three disease caused pox viruses **(3marks)**
- (ii) Explain how human viruses develop resistance to antiviral drugs **(8marks)**

QUESTION TWO

- a) Explain the transmission of plant viral disease by insects **(7marks)**
- b) (i) State the methods used to identify viruses in the laboratory **(4marks)**
 - (ii) Describe plaque assay method of cultivating bacterial viruses **(4marks)**
 - (iii) State the factors that determine efficacy of vaccine. **(4marks)**
 - (iv) Define antiviral resistance **(1mark)**

QUESTION THREE

- a) Outline the types of vaccines **(3marks)**
- b) State the function of viral capsid **(1mark)**
- c) Explain why it is difficult for virus to initiate infections in plants **(2marks)**
- d) (i) Explain the lytic and lysogenic cycles of bacteriophages. **(6marks)**
 - (ii) Explain the stages involved in vaccine preparation **(4marks)**
 - (iii) State the general properties of viruses **(4marks)**

QUESTION FOUR

- a) (i) Define the term (viroid) **(1mark)**
 - (ii) Explain the structure of a virus particle composition **(3marks)**
 - (iii) Explain what is meant by virus being fairly adaptable in living organisms. **(6marks)**
- b) (i) Name diseases caused by prions and viroids. **(2marks)**
 - (ii) Explain the non-specific host defence mechanisms during viral infection **(4marks)**
 - (iii) Identify external symptoms of plant viral infections **(4marks)**

QUESTION FIVE

- a) (i) Define capsomeres **(1mark)**
- (ii) Name the cultural practices used to control plant viruses **(3marks)**
- (iii) Explain how mucus membranes prevent viral infection **(4marks)**
- b) (i) Identify the cells infected by the following viruses whose receptors are shown. **(4marks)**

<i>Virus</i>	<i>Receptor</i>	<i>Cell infected</i>
HIV	CD4	
Epstein Barr virus	CR2	
Influenza A virus	Glycophorin A	
Rhino virus	ICAM-1	

- (ii) Explain the cause and development of Bongine spongiform disease **(4marks)**
- (iii) Explain major problems experienced during serological diagnosis of virus diseases. **(4marks)**