

**TECHNICAL UNIVERSITY OF MOMBASA**  
**FACULTY OF APPLIED AND HEALTH SCIENCES**  
**DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR**  
**OF SCIENCE IN COMMUNITY HEALTH**  
**BSCH 13S/YEAR4/ SEMESTER2**  
**APH 4407: INTRODUCTION TO HEALTH**  
**INFORMATICS**

**SEMESTER EXAMINATION**

**SERIES: APRIL/MAY 2016**

**TIME: 2 HOURS**

*Instructions to Candidates*

This paper consists of FIVE questions

Answer question ONE (COMPULSORY) and any other TWO questions.

*This paper consists of two printed pages.*

**Section one: COMPULSORY question (30 marks)**

**Question one (30 marks):**

- a) Explain three reasons that has caused a rise in application of health informatics in public health. (6 marks)
- b) Historically public health data have been collected using paper questionnaires, however use of Personal Digital Assistant (PDA) is becoming very popular in public health research data collection. List and explain five advantages of using PDAs in data collection. (5 marks)
- c) Explain a database management system (DBMS) and list three examples of DBMS. (5 marks)
- d) Differentiate between a Global Position System (GPS) and a Geographic Information System (GIS). (4 marks)
- e) Explain the term disease surveillance as used in public health. ( 2marks)
- f) List and explain 5 principles that guide programs in developing data security and confidentiality policies. (5 marks)
- g) Below is a question used in a questionnaire that you have been asked to review. Explain the main problem with the question and suggest ways of improving it. (3 marks)

Do you think that smoking should be banned in planes?

**Section two: Answer ANY TWO questions (40 marks)**

**Question Two (20 marks)**

Zika virus disease is caused by a virus transmitted by Aedes Mosquitoes. Cases of the disease have been reported in Brazil in January 2016 and there are fears of large outbreaks which might spread to Africa. Preliminary investigation suggests a link between Zika virus disease and microcephaly (abnormal smallness of the head). The ministry of health in Kenya has decided to conduct a Zika virus disease surveillance and has asked for your expert opinion on how to set up the surveillance. Discuss the steps you would use in planning the Zika virus disease surveillance. (20 marks)

**Question Three (20 marks)**

Discuss five features of a database. (20 marks)

**Question Four (20 marks)**

- a) List and explain the two models used in infectious diseases simulation (6 marks)
  
- b) Discuss the merits and de-merits of using simulation in studying infectious diseases. (14 marks)

**Question five (20 marks)**

Discuss five areas you can apply Geographic Information System (GIS) Technology to promote Population-Based Interventions. (20 marks)