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 INDUSTRIAL MICROBIOLOGY AND
BIOTECHNOLOGY
BTMBT

SBT 2455   : ANALYTICAL MICROBIOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION

OCTOBER 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) Differentiate between quantal and graded response assays   **(5marks)**

b) Explain the importance of the following in sterility testing:-

   (i)   Growth promotion test   **(1mark)**

   (ii)   Negative controls   **(1mark)**

   (iii)   Stasis test   **(1mark)**

   (iv)   Negative product control   **(1mark)**

   (v)   Positive control   **(1mark)**

c) List down the precautions taken against microbial contamination during sterility testing **(5marks)**

d) State the factors that influence antimicrobial susceptibility testing **(5marks)**

e) Describe the use of biological assays in measurement of potency of a compound. **(5marks)**

f) Explain the use of animal assay for quantitative analysis of vitamin content. **(5marks)**

Question TWO

Discuss the following aspects of sterility test facilities:-

a) Clean room design **(6marks)**

b) Air supply **(6marks)**

c) Clothing procedures **(4marks)**

d) Clean room fittings and surfaces **(4marks)**

Question THREE

a) Explain the following results as obtained from susceptibility tests:

   (i) Susceptible organism **(3marks)**

   (ii) Resistant organism **(3marks)**

   (iii) Intermediate organism **(4marks)**

b) Explain the interpretation of results in Kirby –Bauer disc diffusion method **(10marks)**

Question FOUR

Discuss the use of the following sterility tests:-

   (i) Gel clot test **(4marks)**

   (ii) Mycoplasma testing **(4marks)**

   (iii) Microbial limit test **(4marks)**

   (iv) Bioburden testing **(8marks)**

Question FIVE

a) Explain the importance of carrying out substrate utilization assays **(5marks)**

b) (i) Explain the principle behind the use of carbohydrate assays **(3marks)**

   (ii) Describe the procedure followed in carbohydrate assays and interpretation of results.
   (12marks)