

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS 2017/2018**

**EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN MEDICAL BIOCHEMISTRY**

**HBB 2441: PRINCIPLES OF TISSUE CULTURE**

**DATE: DECEMBER 2017 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

QUESTION ONE

a) Using two examples, briefly describe a cell line (3 marks)

b) Explain the mechanism and importance of air-flow within a laminar flow hood (2 marks)

c) How is bacterial contamination detected in a cell culture (4 marks)

d) What are the roles of phenol red in any culture media (2 marks)

e) Briefly describe two methods that can be used to generate immortalized cell lines (4 marks)

f) Describe a technique that can be used to determine cell viability after cryopreservation (5 marks)

g) State the essential roles for managing hazardous chemical materials

(5 marks)

h) Why is it important to regularly examine the morphology of cells in a culture (2 marks)

i) Using examples, explain the roles of personal protective equipment in a laboratory (3 marks)

QUESTION TWO

a) Describe the methods used in isolating cells from tissues for cell culture (10 marks)

b) Discuss the various applications of cell culture (10 marks)

QUESTION THREE

Using examples, explain the various classes of culture media based on application/function (20 marks)

QUESTION FOUR

a) Describe the biosafety levels in a research laboratory (10 marks)

b) Discuss two methods used in gene transfer (10 marks)