

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

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2015/2016**

**YEAR IV SEMESTER II EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOTECHNOLOGY**

**SBT 2413: SECONDARY METABOLITES**

**DATE:DECEMBER 2015 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS.**

QUESTION ONE (30 MARKS)

a. i. Distinguish between secondary metabolites and primary metabolites with reference to fermentation. (2 marks)

 ii. Explain why young tissues should not be picked for extraction of secondary metabolites. (2 marks)

 iii. Why should plant tissues for extraction of secondary metabolites be dried under cool drafts of air at room temperature and not direct sunlight? (2 marks)

b. i. Explain how affinity chromatography/(ELISA) work. (3 marks)

 ii. State two advantages of GC over HPLC. (2 marks)

c. i. State three advantages of bacteria as single cell protein (SCP) compared to yeast. (3 marks)

 ii. What are the limitations of both production and use of microbes as (scp)

 (5 marks)

d. i. State three economic importance of the secondary metabolite ethanol.

 (3 marks)

 ii. Explain why a non desired product can be received from continuous fermentation unlike Batch fermentation. (3 marks)

e. i. What are alkaloids? (2 marks)

 ii. Explain why some Kenyan herbalists choose to operate secretly in society rather than in open clinics. (20 marks)

QUESTION TWO

Discus the recovery and purification of secondary metabolites from fermentation.(20 marks)

QUESTION THREE

Discuss wine preparation from ripe grape fruits. (20 marks)

QUESTION FOU

KEMRI as a research institute of traditional medicine has contributed much towards standardization of herbal practice and other medicinal practices. Discuss. (20 marks)