



# **SOUTH EASTERN KENYA UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2016/2017**

### **FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY**

**SBL 401: APPLIED MYCOLOGY**

**DATE: 16<sup>TH</sup> DECEMBER, 2016**

**TIME: 1.30-3.30 P.M**

#### **INSTRUCTIONS TO CANDIDATES**

- (a) Answer ALL the Questions in Section A**
  - (b) Answer ANY TWO Questions in Section B**
  - (c) Illustrate your answers with well labeled diagrams where appropriate**
- 
- 

#### **SECTION A (30 Marks)**

1. Giving an example, explain why fungi are used as model organisms. **(3 marks)**
2. Explain why microbiologists desire a 'wasteful fungal strain' in industrial fermentation. **(3 Marks)**
3. Describe briefly how a fungus can be manipulated to produce more useful substances for industrial purposes. **(3 marks)**
4. Giving examples, explain the following terms;
  - (a). Mycotoxins. **(1 mark)**
  - (b). Cyclosporin A. **(1 mark)**
  - (c). Fungal pigments. **(1 mark)**
5. List **three** fungi whose genomes have been sequenced and applied in biotechnology. **(3 Marks)**
6. Explain the application of fungal biotechnology in bioremediation of lignin in paper industry. **(3 Marks)**
7. Describe briefly the agro-industrial application of nematophagous fungi. **(3 Marks)**

8. Giving examples, explain three applications of lipases in industry. **(3 marks)**
9. Explain the industrial application of three fungal metabolites. **(3 marks)**
10. Briefly explain the use of fungi in the milk industry. **(3 marks)**

**SECTION B (40 Marks)**

11. Discuss the specific fungal characteristics applied in the brewing industry. **(20 marks)**
- 12 . Discuss the process of industrial discovery of bioactive fungal metabolites. **(20 marks)**
- 13 Giving examples, discuss the reasons for industrial applications of fungal enzymes. **(20 marks)**
- 14 Using the example of glucan pullulan, discuss the reasons for using fungi in the food industry. **(20 marks)**