LIMKOKWING UNIVERSITY OF CREATIVE TECHNOLOGY
ESWATINI

# Test 2

**Faculty of Information and Communications Technology**
**Bachelor Degree in Information Technology**

BIOS4111
Operating Systems
Trimester: 05
From July 2024 to October 2024

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**BITOS4111**

**OPERATING SYSTEMS**

**MODULE DETAILS**

| | | |
|---|---|---|
| Course Location | : | Swaziland |
| Examiner (s) | : | Mr. Ndumiso E. Khumalo |
| Contact details (email) | : | ndumisoe.khumalo@gmail.com |
| Commence Date | : | Week 8 |
| Submission Date | : | Week 8 |
| Duration | : | 2 hours |

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**INSTRUCTIONS:**

1. This paper has **2 QUESTIONS**
2. Answer **ALL** questions
3. The Total Marks is 50 and this paper contributes 15% to your final mark
4. Marks are provided next to each question in square brackets []
5. Use the spaces provided in the question paper or the provided answer sheet.
6. Read each question carefully before attempting.
7. Misconduct, cheating, possession of unauthorised materials, improper use of materials, unauthorised removal of materials from examination rooms or ignoring the instructions given by supervisors is STRICTLY PROHIBITED.

**This exam paper consists of 2 pages including this cover page**

***GOODLUCK!!!***

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**QUESTION 1 – 20 MARKS**

a. Define the following: [3]
   i. Logical Address
   ii. Physical Address
   iii. Brute Force

b. Suppose the base value address is R, and the logical addresses are in the range 0 to max, state the range of physical addresses. [2]

c. Briefly explain the three types of files [3]

d. Classically, the binding of instructions and data to memory addresses can be done at any step along the way. Explain THREE (3) such steps. [6]

e. In operating systems, the general dynamic storage-allocation problem exists, which concerns how to satisfy a request of size n from a list of free holes. Explain the THREE (3) solutions to this problem. [6]

**QUESTION 2 – 30 MARKS**

a. Outline the main difference between symmetric encryption and asymmetric encryption [2]

b. Operating systems provide access method for files, such as sequential access and direct access. Distinguish between sequential access and direct access. [4]

c. To protect a system, we must take security measures at four levels. State one type of attack at each level. [4]

d. With the aid of a diagram and an example, explain the operation of an MMU [10]

e. List the components of the following algorithms: [10]
   i. Encryption Algorithm
   ii. Authentication Algorithm

…….. THE END …….