BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE EDUCATION

EDUCATIONAL TECHNOLOGY DEPARTMENT

BACHELOR OF SCIENCE EDUCATION IN COMPUTER SCIENCE

CS111/EDT111 OPERATING SYSTEMS B

DURATION 3 HOURS Total marks is 100

Instructions to candidates

- JAN 2025

Answer all **questions**

QUESTION 1

a) Explain the following file operations:

i. File creation and manipulation [2]

ii. Opening files [2]

iii. Reading files [2]

iv. Writing a file [2]

v. Repositioning within a file [2]

b) Explain the concept of file allocation table (FAT) in file systems. Discuss the challenges faced by a FAT-based file system when a user wants to install a disk with more than 65,536 sectors. [12]

QUESTION 2

a) With aid of a diagram illustrate the Linux file structure. [12]

b) The operating system must allocate and deallocate various resources for each active process. Name and explain five resources. [10]

QUESTION 3

a) Explain the goals of memory management in an operating system. **[12]**

b) Discuss the benefits and drawbacks of fixed partitioning and dynamic partitioning. **[8]**

QUESTION 4

Discuss the **two** main types of processor scheduling. In each type explain any **two** different types of Central Processing Unit(CPU) scheduling algorithms. **[20]**

QUESTION 5

a) Define concurrency. **[1]**

b) Concurrency arises in three different contexts. Name and explain in full the **three** contexts. **[9]**

c) The operating system must allocate and deallocate various resources for each active process. Name and explain **five** resources. **[10]**

*******END OF EXAMINATION******