



*(Knowledge for development)*  
**KIBABII UNIVERSITY**  
**(KIBU)**

**UNIVERSITY EXAMINATIONS**  
**2017/2018 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS**  
**YEAR TWO SEMESTER TWO EXAMINATIONS**

**FOR THE DEGREE OF**  
**BACHELOR OF SCIENCE**  
**(INFORMATION TECHNOLOGY)**

**COURSE CODE : BIT 123**

**COURSE TITLE : PLATFORM TECHNOLOGIES I**

**DATE: 02/08/2018**

**TIME: 2.00P.M. – 4.00P.M**

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**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE AND ANY OTHER TWO.**

### QUESTION ONE [30 MARKS]

- (a) (i) What is an Operating System? [2 marks]
- (ii) Using specific areas of application, describe any four main functions of an operating systems and accompaniment devices controller. [8 marks]
- (b) Briefly describe the following types of operating systems
- (i) Real-Time [2 marks]
- (ii) Multi-user vs. Single-user [2 marks]
- (iii) Multi-Tasking vs. Single-tasking [2 marks]
- (iv) Distributed systems [2 marks]
- (v) Embedded systems [2 marks]
- (c) To comprehensively understand the functions of an operating system, calls for mastering the computer system structure. State and briefly explain the four components of a computer system structure. [8 marks] AL
- \* (d) Explain the term *Mutual Exclusion* as used in processes procedures of an operating system. [2 marks]

### QUESTION TWO [20 MARKS]

- (a) When processes interact with one another two fundamental requirements "*Synchronization*" and "*Communication*" must be satisfied. What is "*synchronization*" and "*communication*" as used in the functions of an operating system? [4 marks]
- (b) Operating system User Interface enables a user to interact and probe the activities in a computer. State and briefly describe four types of User Interfaces for an operating system environment. [8 marks]
- (c) State the objectives of *long-term* schedulers. [2 marks]
- (d) Explain the functioning of *multiple-level-queue* scheduling [2 marks]
- (e) Briefly discuss the function of a system call giving two examples of such system calls. [4 marks]

### QUESTION THREE [20 MARKS]

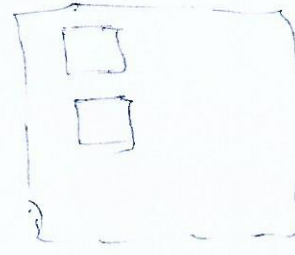
- (a) Any operating system of the day would provide vital tools and modalities of protecting information and supporting devices of a computer system from any known and unknown damages or misuse. State and explain any two methods of achieving the above procedures through each of the following:

- (i) Logical measures [4 marks]
- (ii) Physical measures [4 marks]
- (b) Explain any three advantages of a Graphical User Interface (GUI) in an operating system. [6 marks]
- (c) Define the following terms
- (i) Fetching [2 marks]
- (ii) Swapping [2 marks]
- (iii) Caching [2 marks]

*User friendly  
Easy to learn*

**QUESTION FOUR [20 MARKS]**

- (a) What is a directory hierarchy? Explain your answer with an aid of a diagram [5 marks]
- (b) Briefly explain the following terms
- (i) Kernel [2 marks]
- (ii) Device driver [2 marks]
- (iii) Daemon [2 marks]
- (c) State and describe any two CPU scheduling algorithms [6 marks]
- (d) Define the following processing styles.
- (i) Batch [1 marks]
- (ii) Distributed [1 marks]
- (iii) Real Time [1 marks]



*- ALU  
- CPU  
- Register*

*ALI*

**QUESTION FIVE [20 MARKS]**

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- (a) Why does the widespread use of graphical user interfaces (GUIs) make explicit the need for the underlying operating system to support concurrent processes and threads? [4 marks]
- (b) Security goals of any computer system are decided by its security policies. Briefly explain three computer security goals that can be set in an operating system. [6 marks] ✓
- (c) Briefly elaborate on the following statements.
- (i) Difference between a Job and a Process [4 marks] ✓
- (ii) Advantages of multiprogramming [4 marks] ✓
- (iii) Device independence [2 marks] ✓

*- AV  
- Integrity  
- Conf*