**NAIROBI INSTITUTE OF BUSINESS STUDIES**

 **DEPARTMENT OF COMPUTER SCIENCES**

**DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY (KNEC)**

**END OF TERM EXAMINATION– MARCH 2015**

**TIME ALLOWED: 3 HOURS**

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| **INSTRUCTIONS:**1. Answer **ALL FIVE questions.**
2. **Time allowed is 3 hours.**
3. Any examination **irregularity** will lead to **disqualification.**
4. Indicate your **Admission No**. in each answer sheet provided.
5. Cell phones should be switched off during the examination.
6. No reference material of any kind should be carried into the examination room.
7. Marks may be lost for illegibility.
8. All questions carry equal marks.
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**OPERATING SYSTEMS**

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**Question 1**

1. Explain the following types of the Operating Systems
2. Multi-processor
3. Distributed
4. Batch System (6 marks)
5. Differentiate between ***paging*** and ***segmentation*** memory allocation technique

(5 marks)

1. Explain ***two*** benefits of virtual memory (4 marks)

**Question 2**

1. Distinguish between **layered** and **client -server** operating system structures (4 marks)
2. Explain the following terms as used in memory management:
	* 1. Swapping
		2. Paging (4 marks)
3. State **three** types of fifth generation operating systems. (3 marks)
4. Explain each of the following tables as used in memory management:
5. Hashed
6. clustered page (4 marks)

**Question 3**

1. A certain college has campuses in several towns. Each campus meets its own computational needs but submits a report to the main campus on daily basis.
2. Identify the appropriate Operating System to be used at the main campus.

(1 mark)

1. Explain two characteristics of the Operating System identified in (i) above.

(4 marks)

1. With an aid of a diagram, describe the ***five state process model*** (6 marks)
2. With an aid of an example, define the term system call as used in the operating systems? (4 marks)

**Question 4**

1. Petro was investigating advantages of memory segmentation in operating systems. Explain **two** advantages that he is likely to have identified. (4 marks)
2. What is a flag as used in the operating system? (2 marks)
3. Name ***four*** resources required in a process execution. (4 marks)
4. Differentiate between a ***semaphore*** and a ***monitor*** as used in process management.

(5 marks)

**Question 5**

1. Dorothy intends to design an operating system that uses swapping in memory management. Explain **two** constraints that are likely to be realized. (4 marks)
2. Bev was carrying out a study on benefits of multiprocessor systems. Explain **two** benefits that she could have established. (4 marks)
3. What is the function of the Windows Operating System (3 marks)
4. Citing an example in each case, distinguish between ***reusable*** and ***consumable*** resources as used in the operating systems. (4 marks)