

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2013/2014

**THIRDD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**ICS 2208 :** **OPERATING SYSTEMS II**

**DATE: APRIL 2014 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND**

**ANY OTHER TWO QUESTIONS.**

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**QUESTION ONE (30 MARKS)**

(a) (i) Define the term distributed operating system. [3 marks]

(ii) Explain transparency as used in distributed operating

systems. [6 marks]

(b) Explain the concept of Direct Manipulation Access (DMA.)

[6 marks]

(c) Using a diagram, describe the interrupt cycle. [7 marks]

(d) Using diagrams, differentiate between simple structure and layered operating systems. [8 marks]

**QUESTION TWO (20 MARKS)**

(a) (i) Differentiate between parallel and distributed systems.

[4 marks]

(ii) Explain reasons for sharing memory between processes.

[5 marks]

(b) Explain the concept of Disk cache in operating systems. [5 marks]

(c) Using a diagram, discuss the basic instruction cycle. [6 marks]

**QUESTION THREE (20 MARKS)**

(a) (i) Using an example, explain the operating system deadlock

problem. [5 marks]

(ii) Using a diagram, describe the process state. [5 marks]

(b) Explain any five issue of concern in distributed operating system design. [6 marks]

(c) Differentiate between contiguous file allocation and chained file allocation. [4 marks]

**QUESTION FOUR (20 MARKS)**

(a) Explain the following file movement concepts:

(i) Indexed sequential. [3 marks]

(ii) Indexed allocation. [3 marks]

(iii) File sharing. [3 marks]

(iv) File properties. [3 marks]

(b) Explain any four advantages of MicroKernel system structure.

[8 marks]

**QUESTION FIVE (20 MARKS)**

(a) Explain any four characteristics of client operating systems.

[4 marks]

(b) Discuss simple structure for a file directory. [6 marks]

(c) Describe any five common access rights to files. [10 marks]