

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

## JOMO KENYATTA UNIVERSITY

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2014/2015

**YEAR I SEMESTER II EXAMINATION FOR THE DEGREE OF BACHELOR OF MATHEMATICS AND COMPUTER SCIENCE**

**ICS 2208: OPERATING SYSTEMS II**

**DATE: APRIL 2015 TIME: 2 HOURS**

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

**ANY OTHER TWO QUESTIONS.**

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**QUESTION ONE (30 MARKS)**

(a) What is a distributed system? (2 marks)

(b) State and discuss any three advantages of a distributed

system I. (6 marks)

(c) Explain the requirements for distributed file systems. (4 marks)

(d) Write briefly notes on the following:

i) Load balancing (2 marks)

ii) Process management (2 marks)

(e) Explain the advantages of process migration to users. (4 marks)

(f) State and explain some of the design issues that are being addressed in operating systems. (6 marks)

(g) Outline the characteristics of file systems. (4 marks)

**QUESTION TWO (20 MARKS)**

(a) Describe the multiple layers that communication network is

partitioned into. (10 marks)

(b) Discuss the components of load balancing. (8 marks)

(c) Explain the reasons why an operating system provides

interprocess communication. (2 marks)

**QUESTION THREE (20 MARKS)**

(a) Discuss the mechanisms for interprocess communication (IPC)(8 marks)

(b) State and explain the issues that are involved in message

passing. (8 marks)

(c) Explain any two types of distributed operating systems. (4 marks)

**QUESTION FOUR (20 MARKS)**

(a) The design of a communication network must address four basic issues. Discuss the issues. (8 marks)

(b) Briefly explain how failure detection and reconfiguration

work in robustness. (6 marks)

(c) State and briefly describe four strategies used to handle

deadlocks. (6 marks)