KIBABII UNIVERSITY COLLEGE
(A Constituent College of Masinde Muliro University of Science Technology)
P.O. Box 1699-50200 Bungoma, Kenya
Tel. 020-2028660/0708-085934/0734-831729
E-mail: enquiries@kibabiiuniversity.ac.ke

UNIVERSITY REGULAR EXAMINATIONS

2012/ 2013 ACADEMIC YEAR

FOR THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: CSC 221

COURSE TITLE: OPERATING SYSTEMS DESIGN

DATE: 20th August, 2013 **TIME:** 9.00am – 12.00 noon

Instructions

Answer questions **ONE** and any other **TWO** questions.

Question 1

a) Differentiate between
    i. process and thread [4 marks]
    ii. procedure call and supervisor call [4 marks]

b) Give functional specifications of KMOSSTART and KMOSCLOCK. [8 marks]

c) Outline the advantages of using a multiprocessor. [6 marks]

d) Write structure of PCB in KMOS. Discuss use of fields in this PCB. [8 marks]

Question 2

a) What is multitasking OS? Draw process state transitions in KMOS and explain state transitions. [10 marks]

b) Give functional specifications of SEND and RECEIVE operations in KMOS. [10 marks]

Question 3

a) Explain interrupt management in KMOS. [12 marks]

b) What is dispatch? Write functional specification for process DISPATCH in KMOS. [8 marks]

Question 4

a) Compare the concepts procedure call and context switch. How are they the same and how are they different. [12 marks]

b) Can a user process send a message to an interrupt mailbox? Analyze the resulting behavior of KMOS and discuss whether this operation should be allowed or not. What would be the use, if any, of sending messages to interrupt mailboxes? [8 marks]

Question 5

a) How are various system lists maintained in KMOS? Explain with a diagram. [12 marks]

b) State and explain different types of microprocessor OS [8 marks]