KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATIONS
YEAR FOUR SEMESTER TWO EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE
COMPUTER SCIENCE

COURSE CODE : CSC 473E

COURSE TITLE : PARALLEL AND CLUSTER COMPUTING

DATE: 12/10/2018　　　　**TIME: 11:30 A.M - 1:30 A.M**

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [30 MARKS]

a) Explain the taxonomy of clusters.   [4marks]

b) Outline any four IO needs for cluster computing.   [4marks]

c) Explain the historical trends in multiprocessors.   [6marks]

d) Discuss the Problems associated with I/O.   [6marks]

e) Performance is a key issue in parallel computing system. Explain five factors that influence

   the performance of a parallel computer system.   [10marks]

QUESTION TWO [20 MARKS]

a) State any four characteristics of distributed memory.   [4marks]

b) Explain key issues of concern when designing parallel programs.   [8marks]

c) Briefly highlight the historical trends of computer architectures. [8marks]

QUESTION THREE [20 MARKS]

a) Explain any five Processor Characteristics for Multiprocessing.   [10marks]

b) Describe the components of Non-Hierarchical Loosely coupled Multiprocessor System

                                                                        [10marks]

QUESTION FOUR [20 MARKS]

a) State eight advantages of cluster-computing.   [8marks]

b) Explain the main classification of shared memory machines.   [4marks]

c) Discuss the factors that contribute to scalability in massively parallel computers.   [4marks]

d) Parallel processing can be challenged in four programmatic levels. Explain them.   [4marks]

QUESTION FIVE [20 MARKS]

a) State five advantages of I/O in parallel computing platforms.   [5marks]

c) Explain the concept of NUMA. State its features.   [5marks]

d) Describe the concept of Single Program Multiple Data (SPMD).   [4marks]

e) To accurately gauge system performance, applications programs must be considered. Explain

the Programs used for performance analysis.   [6marks]