Knowledge for Development

KIBABII UNIVERSITY

[KIBU]

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATIONS

YEAR THREE SEMESTER ONE EXAMINATIONS

FOR THE BACHELOR OF
COMPUTER SCIENCE

COURSE CODE	:	**CSC 371E**
COURSE TITLE	:	**REAL TIME SYSTEMS**

DATE: 13/01/2022 **TIME:** 02.00 P.M – 04.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [30MARKS]

a) What is Clustering [4 Marks]
b) Discuss five major constraints of a Wireless Sensor Networks. [6Marks]
c) Wireless Sensor Networks are vulnerable to various types of attacks. Discuss the categorization of these attacks [6 Marks]
d) Why is the Security in MANETs a challenging task and difficult to achieve [4 Marks]
e) The routing protocols define how nodes will communicate with each other and how the information will be disseminated through the network. Discuss the four types of Classification of routing protocols [10 Marks]

QUESTION TWO [20MARKS]

a) Differentiate the following strategies and categorization of clustering [10 Marks]
   i. Locality-Based vs. Non-Locality-Based Clustering
   ii. Single-Hop vs. Multiple-Hop Clustering
   iii. Centralized vs. Distributed Clustering
b) Explain five design challenges in Wireless Sensor Networks [10Marks]

QUESTION THREE [20MARKS]

a) Discuss the wireless Sensor Network Applications [10Marks]
b) Explain three Ad Hoc Wireless Network Features and their Uses [10Marks]

QUESTION FOUR [20MARKS]

a) Explain any five applications of Ad Hoc Wireless Network [10Marks]
b) Advantages and Challenges facing wireless ad hoc networks or MANETs

[10Marks]

QUESTION FIVE [20MARKS]

a) Discuss the following terms as used in security of a MANET [10Marks]
   i. Confidentiality
   ii. Integrity
   iii. Authentication
   iv. Authorization
   v. Non-repudiation
b) Discuss the major constraints of a Wireless Sensor Networks. [10Marks]