(KNOWLEDGE FOR DEVELOPMENT)

KIBABII UNIVERSITY
(KIBU)

UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS

YEAR FOUR SEMESTER TWO EXAMINATIONS

FOR THE DEGREE OF

(COMPUTER SCIENCE)

COURSE CODE: CSC 469E

COURSE TITLE: INTERNET OF THINGS

DATE: 29/09/2021   **TIME:** 02.00 P.M -- 04.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO (2) QUESTIONS

QUESTION ONE (COMPULSORY) [30 MARKS]

a) State **TWO** factors that make internet of everything important [2mks]

b) Outline **FOUR** fundamental components of IoT. [4mks]

c) Outline **TWO** mostly used types of sensors used in IoT. [4mks]

d) Outline any **THREE** advantages and any **TWO** disadvantages of IoT [8mks]

e) Streaming real-time applications faces many challenges. Discuss any **THREE** of these IoT challenges. [6mks]

f) With a suitable example describe the steps necessary for the deployment of IoT project [5mks]

g) Outline any **THREE** network layer routing protocols used in IoT deployment [6mks]

QUESTION TWO [20 MARKS]

a) Discuss any **FOUR** main differences between IoT services and traditional services [4mks]

b) IoT has changed the way things are done in many fields. Outline any **FOUR** application areas [8mks]

c) Describe any **FOUR** characteristics of IoT that makes it possible to communicate with different varieties of physical services [8mks]

QUESTION THREE [20 MARKS]

a) Outline clearly the most significant new opportunities and/or benefits created by IoT, be they technological, policy or economic. [10mks]

b) Outline any **TWO** areas where the government can focus on to help drive IoT adoption in a country [6mks]

c) Discuss any **FOUR** major enabling technologies and protocols for an IoT [8mks]

QUESTION FOUR [20 MARKS]

a) Discuss **FOUR** scenarios where IoT growth is hindered [8mks]

b) The following software applications are important within the IoT network. Explain the responsibility of each.

i)   Data collection [2mks]

ii)   Device integration [2mks]

iii) Real-time analytics [2mks]

c) Explain any **THREE** challenging key issues that the dilemma of current Internet architecture requires great effort to change [6mks]

d) Discuss any **TWO** factors that ensure success in handoff in a wireless system [4mks]

QUESTION FIVE [20 MARKS]

a) Suppose you are tasked to provide a garden water monitoring system, outline:

   i)   IoT solution that you will implement [3mks]

   ii) The benefits from such a system [6mks]

b) Discuss **THREE** important features of IoT [6mks]

c) Outline the difference between hard and soft handoff as used in mobile networking [2mks]

d) Outline any **THREE** IoT technologies that facilitate real-time services. [3mks]