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(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]