THE CO-OPERATIVE UNIVERSITY OF KENYA

END OF SEMESTER EXAMINATION DECEMBER -2022

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE, BUSINESS INFORMATION TECHNOLOGY
(YR III SEM I/YR IV SEM I)

UNIT CODE: BCSC 3117

UNIT TITLE: INTERNET OF THINGS

DATE: THURSDAY, 22ND DECEMBER, 2022

TIME: 2:00 PM – 4:00 PM

INSTRUCTIONS:

- **Answer question ONE (compulsory) and any other TWO questions**

QUESTION ONE

(a) Discuss an example in Kenya where it can be adopted. What benefits will that organisation benefit from adopting the same? (6 marks)

(b) Just like any other technology, IoT faces many challenges and risks. Discuss 3 of those challenges (6 marks)

(c) Differentiate between IoT and M2M (6 marks)

(d) Explain any two market drivers for the Internet of Things (4 marks)

(e) The IoT adaptation has both positive and negative impact on the job market. Discuss (4 marks)

(f) Differentiate between the terms Global Value Chain (GVC) and information-driven global value chain (I-GVC) as used in IoT. (4 marks)

QUESTION TWO

(a) Discuss any four design principles and needed capabilities in the design and implementation of IoT system. (10 marks)

(b) There are several State of the art IOT architecture reference models which have been drafted to regularise the baseline architecture of an IoT. Two of the most common of these models are ETSI M2M and ITU-T reference models. With illustration, briefly discuss one of the two State of the art IOT reference models (10 marks)

QUESTION THREE

(a) There are five fundamental roles within the information-driven global value chain (I-GVC). Discuss these five roles. (10 marks)

(b) What steps can an organization take to protect IoT systems and devices? (6 marks)

(c) Differentiate between a reference model and a reference architecture in IoT (4 marks)

QUESTION FOUR

(a) Discuss the Functional layers and capabilities of an IoT solution   (10 marks)

(b) Standardization in technology, including IoT technologies, is very critical.
   i.   Explain the objective of any technology-oriented standardization   (4 marks)
   ii.   Discuss any three standard considerations   (6 marks)

QUESTION FIVE

(a) Discuss four challenges an organisation may face when implementing an IoT system
                                                                                (8 marks)
(b) IoT architecture is composed of four main components. Discuss those components.
                                                                                (8 marks)
(c) Discuss four characteristics of IoT communications   (4 marks)