MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY POSTGRADUATE SPECIAL EXAMINATION

2018/2019 ACADEMIC YEAR

FIRST YEAR **FIRST** SEMESTER EXAMINATION FOR PHD IN INFORMATION TECHNOLOGY

SIT 700– TRENDS IN INFORMATION TECHNOLOGY

DURATION: 3 HOURS

DATE: 10/5/2019

TIME: 2-5 P.M.

Instructions to candidates:

1. Answer **Any Four** questions.

2. Mobile phones are not allowed in the examination room.

3. You are not allowed to write on this examination question paper.

QUESTION ONE (25 MARKS)

a) Describe any five features of Amazon's Elastic compute cloud (Amazon EC2)

(5marks)

b) Discuss how cloud computing can be applied in County governments in Kenya. What factors influence adoption of cloud computing among organizations? (10marks)

c) What is cognitive computing and what does it entail of? How can cognitive computing be applied in public service delivery? (10marks)

QUESTION TWO (25 MARKS)

a) A smart city is an urban development build using information and communication technology (ICT) and Internet of Things (IOT) to provide useful information to effectively manage resources and assets. Examine with the help of any architecture of your choice, how Big Data can be applied to the emerging smart cities concept.

(10marks)

b) Using a suitable diagram describe the general Architecture of an App Engine. Discuss five kinds of businesses that can benefit from app engines and describe how each can benefit. (15marks)

QUESTION THREE (25 MARKS)

a) The public switched telephone network (PSTN) was optimized for the transmission of voice. Explain how the telephony industry and the data communication industry are able to use the same physical infrastructure of the PSTN. (5marks)

b) Telecommunication sector regulators are faced with huge data to manage, mine and understand. Describe any five current approaches you would recommend for this task.

(10marks)

c) Examine any five challenges e-government faces when dealing with realizing digital preservation. (10marks)

QUESTION FOUR (25 MARKS)

a) Describe the five characteristics of big data. What is the basic difference between traditional RDBMS and Hadoop? (10marks)

b) Explain how analysis of Big Data is useful for organizations. Scholars claim that a lot of existing digital data is in text format. Describe the steps involved in text analytics. What are the major challenges associated with big data. (15marks)

QUESTION FIVE (25 MARKS)

a) Identify and describe briefly information visualization techniques for internet- based information systems. (5marks)

b) Describe visual representation frameworks applicable to knowledge management. Discuss trends in visualization tools, techniques and systems. (10marks)

c) There are various technologies in the market from different vendors including Amazon, IBM, Microsoft etc. to handle Big Data. Discuss operational, Big Data and analytical Big Data technologies, giving popular vendor specific examples in each case. (10marks)