



UNIVERSITY EXAMINATIONS: 2013/2014
EXAMINATION FOR THE MASTER OF SCIENCE IN
DATA COMMUNICATIONS
MDC 6303 EMERGING TECHNOLOGIES IN ICT

DATE: AUGUST, 2014

TIME: 2 HOURS

INSTRUCTIONS: Answer Question One and Any Other Two Questions

QUESTION ONE: [20 Marks]

The term “Emerging Technology” has been frequently used by IT professionals and academics to mean different things. To this, there exist a diverse list of examples of such technologies.

However, little research has shed light on this term and specified its characteristics and what it means. The question of when a technology can be labeled as an emerging technology and when it can be labeled as a traditional/well-established technology remains.

One of the main challenges when investigating ETs is the fact that the term is in many cases not well defined and is often misunderstood.

Using different scenarios (within the context of Information Technologies),

- a) Derive a definition of “Emerging Technologies”. (10 Marks)
- b) Conceptualize the characteristics of Emerging Technologies”. (10 Marks)

QUESTION TWO (15 MARKS)

“From Google Glass to the Fitbit wristband, wearable technology has generated significant attention over the past year, with most existing devices helping people to better understand their personal health and fitness by monitoring exercise, heart rate, sleep patterns, and so on. The sector is shifting beyond external wearables like wristbands or clip-on devices to “body-adapted” electronics that further push the ever-shifting boundary between humans and technology” (World Economic Forum, 2014).

- a) Outline the impact of such technologies within the context of developing countries. (7 Marks)
- b) Discuss the success factors for wearable products. (8 Marks)

QUESTION THREE (15 MARKS)

The Internet boom has provided many benefits for society, allowing the creation of new tools and new ways for people to interact. As with many technological advances, however, the Internet has not been without negative aspects. For example, it has created new concerns about privacy, and it has been hampered by spam and viruses. Moreover, even as it serves as a medium for communication across the globe, it threatens to cut off people who lack access to it.

New solutions in information and communication technologies (ICTs) are constantly emerging, and, for good or for ill, the changes they bring may open up our societies and our world to a greater extent than did the first phase of the Internet revolution. It is imperative to consider the implications of these new technologies, and to encourage positive choices regarding their uses (UNESCO).

- a) Derive at a generic level, the ethical and societal consequences (Infoethics) to Emerging Technologies. (10 Marks)
- b) Discuss Machine-Ethics. (5 Marks)

QUESTION FOUR (15 MARKS)

- a) Write the short notes on the following technologies.
 - i) Screenless Display
 - ii) Brain – Computer Interfaces
 - iii) Quantified Self (Predictive Analytics)(3 Marks Each)
- b) List and Qualify Five (5) emerging data communications technologies. (6 Marks)