



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

SCO 412: MOBILE COMPUTING AND WIRELESS TECHNOLOGY

DATE: 6/5/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer **question ONE** and **any other TWO** questions.

QUESTION ONE (30 MARKS) (COMPULSORY)

- a) Using well labelled diagrams, explain the principle of cellular telephony (8 marks)
- b) Explain the following
 - i. the features of Mobile IP (4 marks)
 - ii. Agent Discovery and registration of mobile IP (4 marks)
- c) Explain any three advantages and disadvantages of M-Commerce (6 marks)
- d) Differentiate between (8 marks)
 - i. Mobile Computing and Wireless Technology
 - ii. Personal and device mobility
 - iii. WiMax and Meghadoot
 - iv. 1G and 2G cellular network

QUESTION TWO (20 MARKS)

- a) Using well labelled diagrams, explain wireless network topologies (8 marks)
- b) Explain the following types of communications (3 marks)
 - i. Unicast
 - ii. Multicast
 - iii. Broadcast
- c) Explain IEEE802.11 Media Access Protocol (9 marks)

QUESTION THREE (20 MARKS)

- a) Differentiate between WiMedia and WiFi (2 marks)
- b) Briefly explain about GPRS (6 marks)
- c) Explain any four different types of registration (4 marks)
- d) Explain any four data management concepts that can address mobility using illustrations (8 marks)

QUESTION FOUR (20 MARKS)

- a) Define RFID and explain its application in tracking items (6 marks)
- b) State four obstacles in mobile communications (4 marks)
- c) Discuss any five security threats to wireless networks (10 marks)

QUESTION FIVE (20 MARKS)

- a) Draw a block diagram of satellite communication system (4 marks)
- b) Explain the following (6 marks)
 - i. Capabilities of WMLScript
 - ii. Features of WSP/B
- c) A safaricom mobile subscriber travelled to Uganda for a seminar with his mobile phone. Explain why he didn't experience call drop from Nairobi to Kampala (6 marks)
- d) Explain the function of IOS (4 marks)