



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

SCO 412: MOBILE AND WIRELESS TECHNOLOGY

DATE: 23/9/2019

TIME: 11:00 – 1:00 PM

INSTRUCTIONS:

Answer question **ONE** and Any other **Two** among the four selective questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Discuss any four characteristics of mobile devices (8 marks)
- b) Differentiate between the following terms as used in mobile computing (8 marks)
 - (i) mobile IP and static IP
 - (ii) mobile computing and wireless computing
 - (iii) Mobile Web and Web
 - (iv) Replication and synchronization
- c) Draw a GSM **architecture** (8 marks)
- d) Explain IEEE802.11 Media Access Protocol with DCF (6 marks)

QUESTION TWO (20 MARKS)

- a) Discuss routing in mobile computing (8 marks)
- b) Discuss any four applications of mobile computing (8 marks)
- c) Explain four parameters for defining QoS in GPRS. (8 marks)

QUESTION THREE (20 MARKS)

- a) Discuss the challenges of data management in mobile computing (6 marks)
- b) Explain the key services and technologies in the following (8 marks)
 - i. 1G
 - ii. 3G
 - iii. 4G
 - iv. 5G
- c) Explain peer-to-peer systems including their properties (6 marks)

QUESTION FOUR (20 MARKS)

- a) Using a well labelled diagram describe satellite communication including its advantages (8 marks)
- b) Using a well labelled diagram, explain why a Mobile traveller may continue calling from one location to another without call drop. (8 marks)
- c) Discuss the WLAN (4 marks)

QUESTION FIVE (20 MARKS)

- a) Draw a well labeled WAP architecture diagram (6 marks)
- b) Discuss any three challenges of routing in mobile computing (6 marks)
- c) Discuss any four enabling technologies for Mobile computing (8 marks)