



TECHNICAL UNIVERSITY OF MOMBASA
INSTITUTE OF COMPUTING AND INFORMATICS

UNIVERSITY EXAMINATION FOR:

BTIT/SEP2014/J-FT

EIT 4402: MOBILE AND WIRELESS COMPUTING

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Pick Date Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

a) Explain the difference between the following terms:

(i) "Wireless " and "Mobility"

(ii) "Home Location Register" and " Visitor Location Register"

(iii) "Base Transceiver Station" and "Mobile Switching Center" (12 Marks)

b) State any five drivers of wireless systems (5 Marks)

c) Explain the following terms:

(i) Short Message Service (SMS)

(ii) Unstructured Supplementary Services Data (USSD)

(iii) General packet Radio Services (GPRS)

(iv) Hotspot”

(v) Handoff

(vi) Cell

(6 Marks)

d) List any four techniques used in the management of mobile users

(4 Marks)

e) State any three data transmission errors

(3 Marks)

Question TWO

a) The cellular networks are going through rapid revolution. Highlight the key features of each of the generation (1G, 2G, 3G, 4G and 5G) of the cellular networks. (10 Marks)

b) Explain the following categories of wireless networks; stating one application in each case:

(i) Wireless personal Area Network

(ii) Body Area Network

(iii) Wireless Local Area Network

(iv) Wireless Metropolitan Area Network

(v) Wireless Wide Area Network

Question THREE

a) Mobile Computing and wireless communication networks are playing an increasingly important role in our professional and personal Lives:

(i) Explain any four strengths of wireless systems that are driving their growth (8 Marks)

(ii) Explain any four Limitations / weakness of wireless systems (8 Marks)

b) Explain the following common air protocols:

(i) Advanced Mobile Phone Service (AMPS)

(ii) IS- 136

(iii) Wideband Code Division Multiple Access (WCDMA)

(iv) Enhanced Data Rates for GSM Evolution (EDGE) (4 Marks)

Question FOUR

a) In Wireless systems, the users of channels need special mechanisms to avoid interference and collisions.

Using suitable diagrams, explain the following mechanisms commonly used:

(i) Frequency Division Multiple Access (FDMA)

(ii) Time Division Multiple Access (TDMA)

(iii) Code Division Multiple Access (CDMA)

(9 Marks)

b) Explain any five advantages of CDMA over TDMA

(10 Marks)

c) State one major challenge facing cellular networks transmission

(1 Mark)

Question FIVE

a) Explain the term “Error Correction Code” as used in wireless transmission

(2 Marks)

b) Explain the application of GPRS in :

(i) Chat

(ii) Home automation

(iii) Web browsing

(iv) Multimedia

(4 Marks)

c) Explain the Wireless Application Protocol stack. Use an illustration to show the layers (14 Marks)