



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

HIGHER DIPLOMA IN COMPUTER STUDIES

ECT3214: MOBILE TECHNOLOGIES

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: FEBRUARY/MARCH 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions in **TWO** sections **A & B**

Answer question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question 1 (20 Marks)

- a) Define the following terms
i. Mobile computing
ii. Grid computing
iii. Pervasive computing
[5marks]
- b) Briefly explain the following mobile computing terms
i. Mobile agent
ii. Mobile node
iii. Mobile IP
[3marks]
- c) Distinguish between the following technologies
i. 1 G
ii. 2 G
iii. 3 G
[3marks]
- d) Explain the following wireless technology terms
i. Cell
ii. Base transceiver station
iii. Base station controller
[3marks]
- e) State **three** factors that determine the size of the cell size in a cellular network
[3marks]
- f) State any **three** challenges facing the mobile devices
[3marks]

SECTION B (Answer any two questions)

Question 2

- a) With the aid of a diagram describe the elements of a cellular network. [10marks]
- b) Briefly explain techniques used for location management [10marks]

Question 3

- a) Explain the following mobile routing terms
i. Home address
ii. Care-of address
iii. Home network
iv. Foreign network
v. Home agent
[10marks]
- b) Briefly describe how routing of messages is achieved in mobile networks
[10marks]

Question 4

- a) Briefly explain the basic operation of mobile IP protocol [10marks]

b) Briefly explain the following flags as used in the mobile IP extension

- i. R
- ii. B
- iii. F
- iv. M
- v. H

[10marks]

Question 5

Briefly describe message routing in the following networks

- i. IP network
- ii. Cellular network

[20marks]