



TECHNICAL UNIVERSITY OF KENYA
FACULTY OF APPLIED SCIENCES AND TECHNOLOGY
SCHOOL OF COMPUTING & INFORMATION TECHNOLOGY
END OF SEMESTER OCTOBER 2017 EXAMINATION SERIES
THIRD SEMESTER EXAMINATIONS 2016/2017
THIRD YEAR EXAMINATIONS FOR THE DEGREE OF
BACHELOR OF TECHNOLOGY IN COMPUTER TECHNOLOGY
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
BACHELOR OF TECHNOLOGY IN COMPUTER AND COMMUNICATION
NETWORKS
**ECSI 3203/ECII 3203/ECCI 3209: MOBILE NETWORKS AND
COMPUTING**

TIME: 2 Hours
OCTOBER 2017

Instructions to candidates:

This paper consists of FIVE Questions.

Answer Question ONE [30 Marks] and any other TWO Questions [20 Marks Each].

Write your college number on the answer sheet.

This paper consists of 2 printed pages

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

QUESTION ONE (30 MARKS) COMPULSORY

- (a) Define the following Terms:
i. IMEI.
ii. Multiplexing.
iii. Capacity.
iv. GPRS
v. Piconet. (10 marks)
- (b) Describe the three fields of a Bluetooth frame. (6 marks)
- (c) Briefly, describe the following concepts of the Mobile IP:
i. Care-of Address.
ii. Tunnel.
iii. Foreign Network.
iv. Home Agent. (8 marks)
- (d) Describe the following service of a Wireless Network infrastructure:
i. Delivery.
ii. Integration.
iii. Re-association. (6 marks)

QUESTION TWO (20 MARKS)

- (a) State four characteristics of a Wireless Network. (4 marks)
- (b) Discuss the following services of a Mobile Network:
i. Mobile Locating.
ii. Hand-off (6 marks)
- (c) Explain the functions of the following Mobile Communications Network components:
i. HLR.
ii. SSGN.
iii. Base Station Controller.
iv. Equipment Identity Register. (8 marks)

- (d) Differentiate between Tracking and Locating as applied to mobile networks.

(2 marks)

QUESTION THREE (20 MARKS)

- (a) Describe the classifications of wireless networks.
(8 marks)
- (b) Outline three advantages and three disadvantages of wireless networks.
(6 marks)
- (c) Explain three functions of a satellite ground station.
(3 marks)
- (d) Outline any three standards of a wireless LAN.
(3 marks)

QUESTION FOUR (20 MARKS)

- (a) Explain the following terms:
i. LAI.
ii. PLMN.
(4 marks)
- (b) Outline any four capabilities of the fifth Generation Broadband Mobile Communication Systems.
(4 marks)
- (c) Compare and contrast between first generation mobile communication systems and their predecessor.
(8 marks)
- (d) Discuss any two technologies used to provide Wireless WAN solutions.
(4 marks)

QUESTION FIVE (20 MARKS)

- (a) Explain the following terms:
i. Donor Cell.
ii. Middleware.
iii. Mobile Agent.
(6 marks)
- (b) Outline any six major features of a mobile system.
(6 marks)

- (c) Describe the hierarchy of mobile network areas.
(6 marks)
- (d) State any four technologies that support Mobile applications over mobile stations.
(2 marks)