



TECHNICAL UNIVERSITY OF MOMBASA

# Institute of Computing & Informatics

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION  
TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY  
(DICT 14J Y2 S1)

**EIT 2203: WIRELESS TECHNOLOGIES**

SPECIAL/SUPPLEMENTARY EXAMINATION  
**SERIES: AUGUST 2016**  
**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions.

Attempt question **ONE (Compulsory)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

**Do not write on the question paper**

## **Mobile phones are not allowed inside the examination room**

### **Question One (Compulsory)**

- a) Define the concept and term wireless technologies. **(3 marks)**
- b) List FOUR major advantages of using wireless networks as compared to wired networks. **(4 marks)**
- c) Define the following terms:  
(i) Access Point  
(ii) Wireless Router  
(iii) Hotspot  
(iv) Peer to peer Wireless Network **(8 marks)**
- d) List FIVE benefits of the OSI model **(5 marks)**

### **Question Two**

- a) Explain how the use of DHCP would be favourable in large wireless network installation. **(5 marks)**
- b) Write a brief history on the development of wireless technologies and the effect it has on modern day computing **(10 marks)**
- c) Define the following:  
(i) Line of sight  
(ii) Wave length  
(iii) Frequency  
(iv) Wireless spectrum  
(v) GSM **(5 marks)**

### **Question Three**

- a) List suitable ways in which wireless networks can be secured from any kind of threats? **(5 marks)**
- b) The following area areas where wireless technologies are adversely utilized. Explain why they are suitable for each area. **(10 marks)**  
(i) Hospitals  
(ii) Airports  
(iii) Universities  
(iv) Cafeteria lounges  
(v) Shopping malls **(10 marks)**
- c) List FIVE reasons why an antennae affects the propagation of a signal in wireless networks **(5 marks)**

### **Question Four**

- a) The following are protocols used in wireless and wireless networks. Describe which layer of the OSI model they operate on and what are the distinct features of each protocol and its suitability **(10 marks)**  
(i) CSMA/CA  
(ii) CSMA/CD

- b) Explain the following generations of Mobile systems as used in GSM networks. Describe their features and capacity **(10 marks)**
- (i) 1G
  - (ii) 2G
  - (iii) 3G
  - (iv) 4G
  - (v) 5G

**Question Five**

- a) Describe the unique features of the following types of wireless networks.
- (i) WLAN
  - (ii) WWAN
  - (iii) WPAN
  - (iv) Ad-hoc
- (10 marks)**
- b) List some of the main features as found or provided by GPRS in GSM networks **(5 marks)**
- c) Explain FIVE features that make wireless technologies highly recommendable **(5 marks)**