



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021 / 2022 ACADEMIC YEAR
SPECIAL / SUPPLEMENTARY EXAMINATIONS
FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

COURSE CODE: BCS 456

COURSE TITLE: WIRELESS SYSTEMS & PROTOCOLS

DATE: 28/07/2022

TIME: 2:00PM - 4:00PM

INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory
Answer TWO questions from section B

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

Question 1

- a) Distinguish between the following terms.
- i. WLAN and WLL
 - ii. AMPS and GSM
 - iii. Cell and Cluster
 - iv. TDMA and FDMA
- (8 marks)
- b) Explain what you understand by the following terms.
- i. Frequency reuse
 - ii. Handoff
 - iii. Trunking
 - iv. Sectoring
- (8 marks)
- c) Explain the difference between frequency-hopping and direct-sequence spread-spectrum systems. Which of these is used with the CDMA one personal communication system?
(8 marks)
- d) Outline any FOUR disadvantages of WPANs. (6 marks)

Question 2

- a) Explain the operation of the cellular system. (8 marks)
- b) Discuss any FOUR performance considerations with regard to a cellular mobile system. (12 marks)

Question 3

- a) Using a suitable diagram describe the GPRS architecture and explain each block. (12 marks)
- b) Discuss the GSM channels and channel modes in brief. (8 marks)

Question 4

- a) Explain any SIX salient features of TDMA. (12 marks)
- b) Show that the North American digital cellular system (D-AMPS) actually uses both TDMA and FDMA. (8 marks)

Question 5

- a) Describe the FOUR basic entities that constitute a Mobile IP aware network. (8 marks)
- b) Using a suitable illustration explain how mobile IP works. (12 marks)