



(University of Choice)

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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR
MAIN EXAMINATIONS
FOR THE DEGREE**

OF

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: Bcs 374

COURSE TITLE: MOBILE COMPUTING

DATE: 07/12/2022

TIME: 8:00-10:00AM

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 ONE

- a. Discuss TWO basic reasons for a handover in cellular systems [4 Marks]
- b. Distinguish between home location register and visitor location register [6 Marks]
- c. State and explain THREE subsystems in GSM system [6 Marks]
- d. Discuss FOUR characteristics that a communication device exhibits [8 Marks]
- e. Discuss THREE phases of how a mobile IP works [6 Marks]

QUESTION TWO

- a. Discuss FIVE current trends in mobile computing technology [10 Marks]
- b. Discuss the actions taken for communication in Inter-System Handoff [6 Marks]
- c. Differentiate between authentication center and equipment identity register [4 Marks]

QUESTION THREE

- a. The fundamental feature of the GSM system is the automatic, worldwide localization of users for which, the system performs periodic location updates. Changing VLRs with uninterrupted availability is called roaming. Roaming can take place within a network of one provider, between two providers in a country and also between different providers in different countries. Discuss FOUR numbers needed to locate and address a mobile station [8 Marks]
- b. Discuss the actions taken for communication in Inter Cell Handoff [6 Marks]
- c. Discuss THREE key factors of Personal Communication System [6 Marks]

QUESTION FOUR

- a. With an aid of a diagram, discuss the architecture of mobile IP. [10 Marks]
- b. With an aid of a neat diagram, Discuss Personal Communication System architecture [6 Marks]
- c. Discuss TWO aspects of mobility in a PCS network. [4 Marks]

QUESTION FIVE

- a.** Discuss THREE categories of services defined in GSM [6 Marks]
- b.** Discuss FOUR handover scenarios of GSM [4 Marks]
- c.** Control channels carry system signaling and synchronization data for control procedures such as location registration, mobile station synchronization, paging and random access between base station and mobile station. Discuss THREE categories of control channel in GSM. [10 Marks]