



*(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 INFORMATION TECHNOLOGY**

**COURSE CODE: BIT 317**

**COURSE TITLE: WIRELESS AND MOBILE COMPUTING**

**DATE: 07/12/2022**

**TIME: 8:00-10:00AM**

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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 [4 MARKS]
- e. Discuss THREE phases of how a mobile IP works [6 Marks]
- f. Based on access protocols, differentiate between the first, second and third and fourth generation of wireless cellular networks (4 Marks)

### **QUESTION TWO**

- 2a. TCP is a reliable transport protocol tuned to perform well in traditional networks that are made up of links with low bit-error rates. Explain how mobile TCP improves the TCP performance in wireless and mobile environment (10 marks)
- 2b. With an aid of a diagram, Discuss the WAP architecture (10 Marks)

### **QUESTION THREE**

- 4a. Describe five classifications of wireless data network [10 Marks]
- 4b. In details, Discuss IEEE 802.11 architecture [10 Marks]

### **QUESTION FOUR**

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

### **QUESTION FIVE**

- 5a. Discuss THREE categories of services defined in GSM [6 Marks]
- 5b. Discuss FOUR handover scenarios of GSM [4 Marks]
- 5b. 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]