



MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER EXAMINATION

**SCHOOL OF PURE, APPLIED AND HEALTH
SCIENCES**

**DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)**

COURSE CODE: COM 3108

COURSE TITLE: MOBILE COMPUTING

DATE: 31ST MARCH 2022 TIME: 11:00AM - 1:00PM

INSTRUCTIONS TO CANDIDATES

- Question ONE in Section "A " is Compulsory
- Answer any Two (2) Questions from Section "B"
- Illustrate your answers where necessary

SECTION A

QUESTION ONE (COMPULSORY 30 MARKS)

1. Describe the various components in the cellular system architecture
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(4 Marks).
2. Mention the discrete sections of GSM
(4 Marks)
3. Description of what an ad hoc network is, providing an example using a technology of your choice
(2 Marks)
4. Provide a brief overview of routing methods in mobile computing
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(4 Marks)
5. Provide two problems of using TCP/IP over wireless links **(4 Marks)**
6. List the problems that the DIANA approach sought to solve in mobile computing
(4 Marks)
7. Describe the new system enhancements provided to GSM by GPRS
.
(8 Marks)

SECTION B

QUESTION TWO (20 marks)

1. Portability and limited processing power exposes mobile computing devices to various security challenges.
 - a. List various security objectives required to be achieved to ensure security of the devices and data held **(4 Marks).**
 - b. Provide a describe of each the objectives listed above **(4 Marks)**
2. Mobile devices in wireless networks exhibit unpredictable movements necessitating wireless network technologies and ever-changing topologies forming ad hoc networks .The mobility exhibited also necessitates route discovery and route maintenance
Provide an explanation of route discovery **(6 Marks)** and route maintenance **(6 Marks)** in an ad hoc network.

QUESTION THREE (20 marks)

1. Describe the objectives to be met to ensure security of a mobile computing environment **(8 Marks)**
2. Provide an overview of the destination-sequenced distance vector (DSDV) protocol including **(12 Marks)**
 - Route advertisement
 - Routing table entry structure
 - Response to topology changes

- Criteria for route selection

QUESTION FOUR (20 marks)

QUESTION TWO (20 marks)

1. Portability and limited processing power exposes mobile computing devices to various security challenges.

- c. List various security objectives required to be achieved to ensure security of the devices and data held **(4 Marks)**.
- d. Provide a describe of each the objectives listed above **(4 Marks)**

2. Provide a brief description of hindrances in the applicability of mobile computing systems **(12 Marks)**

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