

BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE AND ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE
BSc HONS DEGREE IN INFORMATION TECHNOLOGY
COURSE CODE: IT415 - WIRELESS NETWORKS AND MOBILE COMPUTING
DURATION: 2 HOURS 30 MINUTES TOTAL MARKS: 100

MAR 2023

INSTRUCTION TO CANDIDATES

Answer all questions

Question 1

- a. How does a wireless LAN radio NIC identify with which access point to associate? [4]
- b. Why MAC protocol designed for infrastructure based wireless network may not work satisfactorily in infrastructure less environment? [6]
- c. Distinguish Mobile Computing vs. Wireless Networking. [4]
- d. What are the features / objectives of MAC protocols? [6]

Question 2

- a. How is 3G higher than GPRS? [4]
- b. What is hidden and exposed terminal problem? [7]
- c. Explain the structure of mobile computing application [9]

Question 3

- a. List any three advantages of mobile computing. [6]
- b. What are the main differences between the traditional IP and the Mobile IP? [4]
- c. Explain the following terms associated with mobile IP:
 - Home Network [2]
 - Foreign Agent (FA) [2]
 - Care-of-Address (COA) [2]
- d. Outline the agent advertisement procedure of mobile IP. [4]

Question 4

- a. Explain the purpose of Home Location Register (HLR). [5]

- b. Outline any five characteristics of mobile ad hoc network [5]
- c. Describe any five attacks on ad hoc networks. [10]

Question 5

- a. Give two basic reasons for a handover in GSM [4]
- b. Define Handoff and highlight its types. [6]
- c. Discuss the architecture of UMTS with a neat diagram. [10]

*****END OF PAPER*****