

University of Ruhuna - Faculty of Technology

Bachelor of Information and Communication Technology

Level 3 (Semester 1) Examination - November 2019

Course Unit: ICT3142 Mobile Computing Principles (Theory) Time: 2 hours

Answer all four questions

1.

- a) Mobile Computing is also called as Ubiquitous Computing or Nomadic Computing as it describes the ability of computing while on the move. However, mobile computing has more importance *than that*. **List down such benefits and** briefly explain each.
- b) I) List down **six (06)** characteristics of mobile computing.
II) Briefly explain **two (02)** of them.
- c) Mention **five (05)** limitations of mobile computing.
- d) Differentiate mobile computing from wireless networking.

2.

- a) I) List **three (03)** WLAN topologies.
II) Write **three (03)** WLAN issues.
- b) I) List **four (04)** primary responsibilities of LLC.
II) Briefly explain **two (02)** of them.
- c) I) Describe the communication processes Piconet and Scaternet.
II) List **four (04)** types of Bluetooth Protocol Layers.
- d) List down **five (05)** types of middleware examples.

3.

- a) In wireless telephony, a cell is a geographical area covered by a cellular telephone transmitter.
- I) List down **three (03)** advantages of having cell structures.
 - II) Handoff (also known as Handover) is a challenge which introduced with cell structures. Explain what handoff is and **two (02)** situations that handoff can be triggered.
 - III) Currently there are two types of handoffs. Briefly explain each handoff process.
- b) Using suitable diagrams, explain differences between **FDMA** and **TDMA**.
- c) State **two (02)** differences between **AGPS** and **GPS**.
- d) Define **three (03)** types of satellites and briefly explain them.

4.

- a) Mobile Ad Hoc Network (MANET) is a type of ad hoc network that can change its location and configure by itself on the fly.
- I) State **five (05)** differences between infrastructure networks and ad hoc networks.
 - II) Using a suitable diagram, explain the hidden node problem that can occur in ad hoc network.
- b) List **five (05)** GSM elements in GPRS.
- c) I) List **four (04)** methods to ensure security and privacy in mobile applications.
II) Briefly explain each of the above methods.
- d) Briefly explain why the Mobile IP was created.

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