



The University of Fiji

School of Science and Technology

Department of Computer Science/ Information Technology

ITC333

Distributed Systems Technology

Semester I, 2012

Final Examination Paper

Time Allowed: 3 Hours [10 Minutes Extra Allowed For Reading the Paper]

Section A:

20 True/False questions - 20 marks

Section B:

Five Questions and Answer - 80 marks

Total: 100 marks

Instructions

- This examination consists of Two sections
- Answer **ALL** questions
- Write all answers in the **Answer Booklet** provided.
- You must show complete working in-order to get full marks for some questions
- You may ask for extra sheets from the supervisors if the need arises.
- Please hand in your answer booklet to the supervisor before leaving the room.
- Do not forget to write your ID number on all the extra sheet(s) attached.
- Programmable calculators are not allowed.

Section A

Write "T" for True or "F" for False in your Answer Booklet

1. _____ Hotspots: Locations where wireless data services are available.
2. _____ Wireless local area network (WLAN): Essentially identical to standard local area network (LAN) except devices not connected by wires and can increase productivity.
3. _____ Bluetooth wireless standard: Enables short range wireless communication and used in many small devices.
4. _____ Fixed broadband wireless: Wireless transmissions between immobile devices, typically between office buildings and utilizes small, customized antennas.
5. _____ Free space optics (FSO): Alternative to high-speed fiber optic transmissions.
6. _____ One of the functions of an access point is to serve as a base station for the wireless network.
7. _____ Although the transmission range of an access point can vary, the number of wireless clients that it can support does not vary.
8. _____ Power over Ethernet allows wireless client network adapter cards to be placed in locations even though there is not an electrical outlet nearby.
9. _____ A remote wireless bridge can only connect wireless networks together.
10. _____ Both point-to-point and point-to-multipoint configurations can be supported by a remote wireless bridge.
11. _____ One of the functions of an access point is to serve as a base station for the wireless network.

12. _____ Although the transmission range of an access point can vary, the number of wireless clients that it can support does not vary.
13. _____ Power over Ethernet allows wireless client network adapter cards to be placed in locations even though there is not an electrical outlet nearby.
14. _____ A remote wireless bridge can only connect wireless networks together.
15. _____ Both point-to-point and point-to-multipoint configurations can be supported by a remote wireless bridge.
16. _____ Radio transmissions send what is known as a carrier signal.
17. _____ Wireless LAN transmissions are analog and not digital.
18. _____ Modulation cannot be performed on analog transmissions.
19. _____ RFID tags can be either passive or active.
20. _____ Devices based on the Infrared Data Association (IrDA) standards can transmit at much higher rates than IEEE 802.11g networks.

Section B There are six questions in this section (80 marks)

Answer all the questions. *Each question should start on a new page*

Question 1 (10 marks)

- a) List and describe two differences between a wireless and a wired network interface card. (2 marks)

- b. What is the difference between a Bluetooth master and slave? (2 mark)

- c. Explain what Wireless Application Protocol (WAP) is and how it works. (2 marks)

- d. List and describe two differences between radio frequency identification tags and standard barcodes. (2 marks)

- e. Explain how wireless can increase the reliability of a network. (2 marks)

Question 2 (20 marks)

- a) List and describe the three types of WLAN configurations? (3 marks)

- b) List Four function of the Media Access Control (MAC) layer in the WLAN? (4 marks)

- c) When reviewing a current wireless LAN, You would include a network documentation. List five things you would include in your documentation. (5 marks)

- d) List five categories of attackers. (5marks)
- e) List the three regulatory bodies that play a major role in wireless LAN technology: (3 marks)

Question 3 (20 marks)

- a) List three advantages of Wireless LANs. (3 marks)
- b) Mention three disadvantages of wireless LANs. (3 marks)
- c) List four different modes in which a remote wireless bridge can function. (4 marks)
- d) List five enterprise security tools. (5 marks)
- e) Mention at least five times when a site survey should be conducted. (5marks)

Question 4 (10 marks)

- a) Describe two types of **antennas** that should be used on an AP when conducting a site survey.
(2 marks)

- b) Explain the three categories of **WLAN protections**. (3 marks)

- c. Explain why Carrier Sense Multiple Access/Collision Detection cannot be used on a WLAN.
(1 mark)

- d. How does **fragmentation reduce collisions**? (1 mark)

- e. Why is **Quality of Service (QoS)** important to WLANs? (1 mark)

- f. Explain how **power management** functions on an **infrastructure network**. (1 mark)

Question 5 (20 marks)

- a) What is the **fundamental** difference between a **WLAN**, **WPAN**, and **WWAN**? (1 mark)
- b) What is the difference between a **regular Web browser** and a **micro-browser**? (2 mark)
- c) What is the difference between **HTML** and **WML**? (2 mark)
- d) What is the difference between **Wi-Fi** and **WiMAX**? (2 mark)
- e) Mention two **advantages and disadvantages** to using a hot spot? (4 mark)
- f) When should an 802.11**a** network be installed instead of an 802.11**g** network? (2 marks)
- g) What is the difference between a **thin access point** and a **fat access point**? (2 marks)
- h) What are the three considerations when installing and configuration an **ad hoc network**?
(3 marks)
- i) Explain what you understand by **channel reuse**. (2 mark)

The End ☺

10

11

12