



**UNIVERSITY COLLEGE TATI (UC TATI)**

**FINAL EXAMINATION QUESTION BOOKLET**

COURSE CODE	: DNT 3053
COURSE	: WIRELESS NETWORK
SEMESTER/SESSION	: 1 - 2022/2023
DURATION	: 3 HOURS

**Instructions:**

1. This booklet contains 5 questions. Answer ALL questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, rise up your hands and ask the invigilator.

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO**

**THIS BOOKLET CONTAINS 3 PRINTED PAGE INCLUDING COVER PAGE**

**QUESTION 1**

- a. List and describe briefly **THREE (3)** types of wireless networks. (9 marks)
- b. Give **TWO (2)** advantages and **TWO (2)** limitation of the wireless technology. (4 marks)
- c. What is the full acronym for "SSID"? Define it function. (2 marks)
- d. Explain in details the systematic processes on how to configure SSID. (5 marks)

**QUESTION 2**

- a. Define the meaning of "electromagnetic wave" in wireless communications. (4 marks)
- b. State **FOUR (4)** examples of modulation techniques. (4 marks)
- c. Discover **THREE (3)** techniques on how to transmitting Digital Data with Analog Signals using suitable diagrams for each. (6 marks)
- d. Elaborate **THREE (3)** types of noise interrupt in the signal. (6 marks)

**QUESTION 3**

- a. Beside Bluetooth, give **TWO (2)** wireless standards that used in the short-range wireless environment. (2 marks)
- b. Discuss any **TWO (2)** examples of Bluetooth application for mobile phone. (4 marks)
- c. What are the configurations of Bluetooth? Give examples of the applications of these configurations, support your answer with appropriate diagram. (8 marks)
- d. Explain in details how Bluetooth technology fulfills the Wireless Personal Area Network (WPAN) criteria. (6 marks)

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**QUESTION 4**

802.11 refer to a family of specifications developed by the IEEE for wireless LAN technology. 802.11 specify an over-the-air interface between a wireless client and a base station or between two wireless clients. The original 802.11 specifications provide 1 or 2 Mbps transmission in the unlicensed 2.4GHz band using either a Frequency Hopping Spread Spectrum (FHSS) technique, Direct Sequence Spread Spectrum (DSSS) technique, or Code Division Multiple Access also known as CDMA. There are several specifications in the 802.11 families.

- a. Discuss briefly the difference between the 802.11a, 802.11b and 802.11g wireless standards and what are the emerging standards that will follow these? (10 marks)
  
- b. Illustrates and differentiates the architecture all of the famous spread spectrum techniques including FHSS, DSSS and CDMA. (10 marks)

**QUESTION 5**

There are a number of reasons for wireless attacks today. The main one is that the nature of a wireless network is to provide easy access to end users, but this ease of access creates a more open attack surface. Unlike a wired network that requires an attacker to physically access part of the network, a wireless network only requires that the attacker be in close proximity (and even this is relative). Also, there is a general lack of knowledge and awareness of wireless networks. There are following are some of the popular types of attacks on Wireless LAN:

- a. List and explain **FIVE (5)** of the popular types of attacks on Wireless LAN. (10 marks)
  
- b. Discuss in detail the current security problems of IEEE 802.11 in terms of authentication and privacy? (10 marks)

----- **END OF QUESTIONS** -----

