



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2021/2022**

COURSE NAME : ADVANCED NETWORK SECURITY  
COURSE CODE : CII10303  
PROGRAMME CODE : CII  
EXAMINATION DATE : JANUARY / FEBRUARY 2022  
DURATION : 3 HOURS  
INSTRUCTION : 1. ANSWER ALL QUESTIONS  
2. THIS FINAL EXAMINATION IS  
AN **ONLINE** ASSESSMENT AND  
CONDUCTED VIA **OPEN BOOK**

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

- Q1** With the help of a sketch, propose a secure network design which integrate the following networks: WiFi, MiFi, LAN and WAN. Your propose design must include devices such as switches, routers, firewall, Demilitarize Zone (DMZ), alternative gateway, appropriate servers and/or any security mechanisms for protecting the overall network from various attacks. (20 marks)
- Q2** (a) Discuss **FOUR (4)** technologies or techniques for performing effective backup from various devices over the network. (10 marks)
- (b) In your opinion, which backup technique is the best for an Internet of Things (IoT) network (various sensors and IoT devices) which generate tremendous amount of data daily? Justify your answer. (10 marks)
- Q3** (a) Discuss **FOUR (4)** important elements in a secure network communication. (10 marks)
- (b) In your opinion, which mitigation technique is the best to handle non-repudiation between sender and receiver? Justify your answer. (10 marks)
- Q4** (a) Describe the function of Remote Authentication Dial-in User Service (RADIUS server within User Datagram Protocol (UDP)? (4 marks)
- (b) What are the DNS Client Request receive port number on the server and on the receive port number on client RADIUS side. (2 marks)
- (c) Describe which mechanism is used in Transmission Control Protocol (TCP) Three Way Handshake to reset a connection when an error or timeout occurs. (4 marks)



(d) List **THREE (3)** types of applications best suited for UDP. (3 marks)

(e) Which transport protocol is the best for handling communication using Long Range WAN (LoRaWAN) technology? Justify your answer. (7 marks)

**Q5** Prepare a Risk Management Guidelines which includes **SIX (6)** risk factors important for the survival of the organization computer network in long run based on the requirements shown in **Figure Q5**. (20 marks)

**-END OF QUESTIONS-**

**FINAL EXAMINATION**

SEMESTER/SESSION : SEMESTER 1 2021/2022

PROGRAMME : CII  
CODECOURSE NAME : ADVANCED NETWORK  
SECURITYCOURSE : CII10303  
CODE

Assuming that you have been appointed as a new security administrator for an Information Center, Universiti Tun Hussein Onn Malaysia (UTHM). You have been asked to prepare a Risk Management Guidelines for the university overall network infrastructure.

**Figure Q5: UTHM's Risk Management Guideline**