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Student ID: [redacted]

Air University
Final Examination: Fall 2024

Subjective
(To be solved on Answer Books only)

Subject: Introduction to Information and Communication Technologies
Class: BS-CyS Fall 2024 (Eve)
Section(s): BA
Course Code: CS181

Time Allowed: 3 Hours
Max Marks: 100
FM's Name: Hilmand Khan
FM's Signature:

INSTRUCTIONS

- Attempt responses on the answer book only.
- Nothing is to be written on the question paper.
- Rough work or writing on question paper will be considered as use of unfair means.
- Tables / calculators are not allowed.

Q1	CLO 1	1) Discuss the key differences between a single-user/single-tasking OS and a multi-user/multitasking OS. Provide examples of each type and explain the advantages and disadvantage of each. **Marks (12)** 2) Imagine you're a network administrator for a small to medium-sized enterprise (SME). You're tasked with designing a new network infrastructure. Consider the network topologies Bus, Star, Ring and Mesh: a) **Describe** how devices are connected in each of the topologies. b) **Discuss** the advantages and disadvantages of each topology in terms of performance, reliability, and cost. c) **When** might be a specific topology be a suitable choice for an SME network? Based on your analysis, which topology would you recommend for Air University network, and why? **Marks (15)** 3) Discuss the concept of IP addresses and domain names. Explain how they work together to enable communication on the Internet. **Marks (8)** 4) Imagine you're a cybersecurity consultant hired by a small Restaurant business to assess their network security. i) What is a threat in the context of this business?	**Marks (63)**

		ii) Provide examples of common threats that could affect the business. iii) What is a vulnerability in the context of cyber security? iv) Provide examples of vulnerabilities that might exist in the business's network or systems. v) How is risk related to threats and vulnerabilities? vi) Explain the concept of risk assessment and how it helps prioritize security measures. vii) How can encryption be used to protect sensitive data? viii) Discuss the importance of strong encryption algorithms and key management. **Marks (16)** 5) Discuss the following: **Marks (12)** a) Common methods used by identity thieves. b) How social engineering tactics can be used to obtain personal information. c) How can individuals protect themselves from identity theft? d) Practical tips to protect personal information. e) Importance of using secure Wi-Fi networks and avoiding public Wi-Fi for sensitive transactions. f) Role of identity theft protection services and insurance.	
Q2	**CLO 2**	1. Explain the key architectural components of a microprocessor, including the CPU, ALU, control unit, registers, and cache memory. Explain their role in coordinating the activities of a Computer System. **Marks (15)** 2. Discuss emerging technologies, such as artificial intelligence, the Internet of Things (IoT), and virtual reality, and their potential impact on the future of the Internet. **Marks (15)** 3. Explain how email, email lists, instant messaging, chat rooms, online discussions, VoIP, and FTP work **Marks (7)**	**Marks (37)**