UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2023/2024

COURSE NAME	:	INFORMATION TECHNOLOGY IN EDUCATION
COURSE CODE	:	BBD 10803
PROGRAMME CODE	:	BBA/BBB/BBC/BBD/BBE/BBF/BBG
EXAMINTION DATE	:	JULY 2024
DURATION	:	3 HOURS
INSTRUCTION	:	1. ANSWER ALL QUESTIONS
		2. THIS FINAL EXAMINATION IS CONDUCTED VIA :
		☐ Open book
		☒ Closed book
		3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **EIGHT (8)** PAGES

Q1   Which technology replaced vacuum tubes in computers and marked a significant advancement in their design and function?

    A.   The Integrated Circuit (IC)
    B.   The Transistor
    C.   The Microprocessor
    D.   The Magnetic Disk

Q2   Considering the development of neuromorphic chips, which industry is likely to see significant transformation due to the application of this technology?

    A.   Petroleum refining processes
    B.   Textile manufacturing
    C.   Autonomous vehicle navigation
    D.   Traditional desktop computing

Q3   Communication between a computer and a keyboard involves _____ transmission.
    A.   automatic
    B.   half-duplex
    C.   full-duplex
    D.   simplex

Q4   Which of the following is an optical input device that interprets pencil marks on paper media?

    A.   Optical Mark Recognition
    B.   Optical scanners
    C.   Magnetic tape
    D.   Punch card reader

Q5   How are current advancements aimed at enhancing the sustainability of Hard Disk Drives (HDDs)?

    A.   By developing sturdier materials for HDD casings
    B.   By optimizing firmware and software for recycling and longevity.
    C.   By increasing the magnetic storage density of the disks
    D.   By reducing the physical size of HDDs to decrease material usage

Q6   A "bit" in digital storage refers to _____

    A.   The amount of data needed to represent a single character of text
    B.   A binary digit, the smallest increment of data on a computer
    C.   A group of eight binary digits
    D.   The standard unit of data transfer rate

Q7 What is the purpose of the RAID technology method?

    A. Compress data without loss of information
    B. Store data redundantly to increase fault tolerance
    C. Randomize data storage for security purposes
    D. Reduce the need for external storage solutions

Q8 Why is CPU cache memory critical?

    A. It offers a permanent storage solution for user information
    B. B. It provides the system with any necessary backup power
    C. It reduces the average time to access data from the main memory
    D. It improves the capability of graphics processing technologies

Q9 Which of the following best describes how a CPU with a faster clock speed affects the machine cycle?

    A. A faster clock speed primarily enhances the fetch stage by improving the retrieval time of instructions from the cache
    B. A faster clock speed does not affect the machine cycle but increases the heat output of the CPU
    C. Increasing the clock speed can reduce the total time required for a machine cycle, thereby potentially increasing the number of cycles per second
    D. A higher clock speed significantly improves the decode stage, as it allows for more complex instruction sets to be used without performance penalties

Q10 What CMOS adjustments should a technician make to optimize a computer's performance specifically for high-end gaming, without upgrading hardware?

    A. Modify the memory settings in the CMOS to maximize RAM frequency and minimize latency, ensuring smoother gameplay.
    B. Enable virtualization technology in the CMOS to enhance the efficiency of gaming emulators, providing a better emulation environment.
    C. Disable unnecessary BIOS features such as onboard audio and video, if high-performance dedicated cards are installed, to prevent resource conflicts.
    D. Configure the primary graphics adapter setting to prioritize a dedicated GPU over integrated graphics, optimizing rendering performance in games.

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Q11 When discussing operating systems, which of the following statements are true about multitasking?

    I. Multitasking refers to a system's ability to manage multiple tasks at a time.
    II. In cooperative multitasking, each task is responsible for providing the operating system with opportunities to switch to another task.
    III. Preemptive multitasking involves manual switching between tasks by the user.
    IV. Multitasking can lead to CPU overuse if not managed efficiently.

    A. I, II, and III
    B. I, II, and IV
    C. I, III, and IV
    D. II, III, and IV

Q12 What distinct advantage does Augmented Reality (AR) offer over traditional learning methods in a classroom setting?

    A. AR replaces the need for textbooks and printed materials completely.
    B. AR enables students to experience instantaneous virtual relocation to diverse settings
    C. AR makes instruction engaging by integrating virtual and real worlds.
    D. AR ensures students no longer need teachers for instruction.

Q13 What is a network topology where each node is connected to exactly two other nodes, forming a single continuous pathway for signals?

    A. Star topology
    B. Ring topology
    C. Mesh topology
    D. Bus topology

Q14 Which of the following statements are true about the 5G network?

    I. Retail stores can utilize 5G to manage their inventory and stock in real-time.
    II. 5G combined with IoT can assist manufacturers in assessing the quality of their production.
    III. In terms of coverage area, 5G covers a wider area than 4G.
    IV. The lower latency in 5G networks allows for high-speed data transfer.

    A. I, II, and III
    B. I, II, and IV
    C. I, III, and IV
    D. II, III, and IV

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Q15 Which statement best describes the role of a server in a client-server network model?

      A. Servers primarily boost the processing power of clients by sharing computational tasks.

      B. Servers are specialized computers that manage network traffic and data flow exclusively.

      C. Servers provide resources and services, such as data storage and application hosting, to client computers.

      D. Servers are passive network components that only activate during network maintenance

Q16 Which of the following accurately reflects the roles and specifications of web protocols and components?

      A. HTTP is solely responsible for encryption while HTTPS is used for data transfer.

      B. SSL/TLS can directly facilitate the transfer of hypermedia documents over the internet.

      C. HTTP is foundational for data transfer, DNS resolves internet domains into IP addresses for routing.

      D. URLs are principally used for formatting text on web pages, whereas URIs are used for identifying web resources.

Q17

> "Attackers can gain full remote access to a computer, allowing them to steal usernames, passwords, and other personal information. They can also take control of the computer for various malicious activities, such as sending spam emails and installing spyware"

Figure Q17

Which of the following terms is most closely associated with the actions described in the statement in Figure Q17?

      A. Cyberbullying

      B. Cyberstalking

      C. Phishing emails

      D. Hacking

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Q18 Which tactic is most frequently used in phishing attacks to trick a victim into thinking they are communicating with a trustworthy source?

    A. The attacker uses complex network layer encryption to disguise the phishing attempt.
    B. The email is crafted to include urgent or threatening language to provoke immediate action.
    C. Phishing attacks are usually propagated through public Wi-Fi networks to mask the sender's origin.
    D. The email redirects the user to a high-quality video that explains the need for information verification.

Q19 What are the potential drawbacks of relying heavily on AI-driven educational platforms?

    I. They may not cater to the individual emotional and social needs of students.
    II. They can instantly replace traditional teaching methods without any transition issues.
    III. Over-reliance might make students dependent on technology for basic problem-solving.
    IV. AI platforms always ensure better learning outcomes than human teachers.

    A. I and III
    B. I, II and III
    C. I, III, and IV
    D. II, III, and IV

Q20 Which application of Virtual Reality (VR) would most effectively help architecture students apply theoretical knowledge in structural design?

    A. Viewing galleries of famous buildings in VR.
    B. Using VR to create and modify their own building designs.
    C. Watching videos of architects discussing their design process in VR.
    D. Taking virtual tours of architectural firms.

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Q21 a) Define Edge Computing and discuss the potential impact of Edge Computing in the classroom setting.

(4 marks)

b) Explain the function of a digital projector in educational settings and discuss its advantages over traditional blackboards.

(4 marks)

c) Discuss the key differences between LCD, OLED, and LED monitors in terms of technology, operation, image quality, and energy efficiency.

(12 marks)

Q22 a) Discuss the transformative potential of Augmented Reality (AR) eyewear/glass in the future classroom. Highlight three (3) educational scenarios where augmented reality spectacles could be utilized effectively.

(6 marks)

b) Analyze the importance of a proficient cooling system in a computer's system unit and examine two (2) potential effects of insufficient cooling on the system performance and lifespan of a system.

(6 marks)

c) Examine how the integration of word processors, spreadsheet applications, and presentation programs into a single office suite improves productivity and workflow efficiency.

(4 marks)

d) Explain how spreadsheet software supports teaching and learning environments. Provide one advanced features that enhance its functionality

(4 marks)

Q23 a) A communication system consists of f (4) fundamental elements. Explain the function of each individual element.

(8 marks)

b) Describe the following key technological concepts; internet, intranet, Internet of Thing (IoT), cloud computing, Software as a Service (SaaS) and fog computing.

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(12 marks)

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Q24 a)   Discuss three (3) ethical considerations teachers must address when incorporating technology into the classroom, particularly regarding student data privacy.

(6 marks)

b)   Analyze the ethical challenges that arise with the use of artificial intelligence (AI) in educational assessments

(6 marks)

c)   Discuss the role of simulation in TVET education. How does it enhance learning outcomes compared to traditional learning methods?

(8 marks)

- END OF QUESTIONS -

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