



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2023/2024 ACADEMIC YEAR  
FORTH YEAR FIRST TRIMESTER EXAMINATIONS  
FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE IN CLINICAL MEDICINE**

**COURSE CODE: HCM 400**

**COURSE TITLE: TELEMEDICINE**

**DATE: 5<sup>th</sup> December 2023**

**TIME: 8:00am - 10:00am**

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**INSTRUCTIONS TO CANDIDATES**

This paper consists of three sections:

- i. Section A – Multiple Choice Questions
- ii. Section B – Short Answer Question
- iii. Section C – Long Answer Question.

Answer all questions

TIME: 2 Hours

**MMUST observes ZERO tolerance to examination cheating**

This Paper Consists of 5 Printed Pages. Please Turn Over. ►

**Section A: Multiple Choice Questions (20 marks)**

1. What is telemedicine?
  - a. In-person medical consultations
  - b. The use of technology to deliver remote healthcare services
  - c. Traditional medicine practiced by remote medical practitioners
  - d. Telecommunications for emergency services
2. What is the primary goal of telemedicine?
  - a. Reducing the cost of healthcare services
  - b. Expanding access to healthcare
  - c. Replacing traditional in-person medical consultations
  - d. Standardizing medical treatment globally
3. Telemedicine can be particularly beneficial in providing care for patients with:
  - a. Non-urgent medical conditions
  - b. Immediate life-threatening emergencies
  - c. Complex surgical needs
  - d. Chronic illnesses requiring continuous monitoring
4. What is the primary purpose of a communication protocol in computer networks?
  - a. Ensuring data security
  - b. Regulating communication between devices
  - c. Providing high-speed internet access
  - d. Managing network hardware
5. Which of the following is a widely used internet communication protocol?
  - a. HTTP
  - b. FTP
  - c. SMTP
  - d. All of the above
6. Which network topology connects each device to a central hub?
  - a. Bus
  - b. Star
  - c. Mesh
  - d. Ring
7. Differential cryptanalysis and linear cryptanalysis are techniques primarily used for analysing:
  - a. Public-key cryptography
  - b. Block ciphers
  - c. Stream ciphers
  - d. Hash functions
8. The Caesar cipher is an example of a:
  - a. Transposition cipher
  - b. Substitution cipher
  - c. Block cipher
  - d. Public-key cipher
9. Which mathematical concept is fundamental to public-key cryptanalysis?
  - a. Prime numbers
  - b. Quadratic equations
  - c. Trigonometry
  - d. Factorial mathematics
10. What type of information is factual, objective, and verifiable?
  - a. Primary information
  - b. Secondary information
  - c. Quantitative information
  - d. Empirical information
11. Which type of information deals with an individual's opinions, beliefs, and personal experiences?

- a. Qualitative information
  - b. Scientific information
  - c. Primary information
  - d. Analytical information
12. What multimedia element combines visuals and sound to create a moving sequence?
- a. Text
  - b. Images
  - c. Audio
  - d. Video
13. What is the term for interactive multimedia elements that allow users to navigate and explore content?
- a. Hypertext
  - b. Animation
  - c. Audio
  - d. Video
14. Which element of multimedia is often used in e-learning to provide interactivity and quizzes?
- a. Hypertext
  - b. Animation
  - c. Audio
  - d. Video
15. Which of the following describes is encryption?
- a. The process of making data indecipherable to unauthorized users
  - b. The process of compressing data for efficient storage
  - c. The process of organizing data into a structured format
  - d. The process of securely deleting data from a storage device
16. In asymmetric encryption, how many keys are used for encryption and decryption?
- a. One shared key
  - b. Two separate keys
  - c. Three keys
  - d. No keys
17. Which encryption key is used for encryption in asymmetric encryption?
- a. Public key
  - b. Private key
  - c. Symmetric key
  - d. Session key
18. The process of converting plain text into cipher text is known as:
- a. Decryption
  - b. Key exchange
  - c. Encryption
  - d. Encoding
19. In the context of system integration, what does API stand for?
- a. Application Program Interface
  - b. Advanced Programming Integration
  - c. Automated Processing Interface
  - d. Application Platform Integration
20. Which integration approach involves sharing data in real-time between systems without a central hub?
- a. Point-to-point integration
  - b. Hub-and-spoke integration
  - c. Enterprise Service Bus (ESB) integration
  - d. Cloud-based integration

**Section B: Short Answer Questions (40 marks)**

1. Explain the major components of information security (8marks)
2. Explain the classification types of encryptions (8marks)
3. Explain the impact of tele-surgery in health care delivery (8marks)
4. Explain the uses of tele pathology systems used in telemedicine (8marks)
5. Describe the core principles of medical ethics (8marks)

**Section C: Long Answer Questions (40 marks).**

1. Discuss ways telemedicine systems are integrated to achieve harmony.
2. Discuss the common tele radiology models and clinical utilization of tele radiology (20marks)