**TRIBHUVAN UNIVERSITY**

**Institute of Science & Technology**

**Final Terminal Examination - 2081**

**Centre: Mahendra Morang Adarsh Multiple Campus, Biratnagar**

**Level: B.Sc.CSIT**

Batch: **2080**

Semester: **I** Full Marks: **60**

Course Title: **IIT**

Course Code: **CSC 114**

**SET – A**

**Exam Roll No…………….**

Attempt any two questions (10\*2=20)

1. **Discuss the significance of computer networks in modern society, outlining their role in resource sharing, information dissemination, communication, and support services. Highlight the importance of various data transmission media and their respective characteristics in facilitating efficient networking. (10 marks)**
2. **Explain the concept of an operating system (OS) and its objectives within a computer system. Compare and contrast different types of OS such as single-user/single-tasking, single-user/multi-tasking, multi-user, multiprocessing, real-time, and embedded systems, emphasizing their unique functionalities and applications. (10 marks)**
3. **Define computer security and elaborate on the various types of security attacks that threaten the integrity, confidentiality, and availability of data and systems. Discuss the role of security mechanisms such as cryptography, firewalls, and intrusion detection systems in mitigating these threats. (10 marks)**

Attempt any four questions (5\*8=40)

1. **Explain the concept of cloud computing and its impact on modern IT infrastructure. Discuss the advantages of cloud computing in terms of scalability, flexibility, and cost-effectiveness. (5 marks)**
2. **Define the term "computer bus" and explain its role in facilitating communication between hardware components. Discuss the types of computer buses commonly found in computer systems. (5 marks)**
3. **Discuss the significance of database management systems (DBMS) in modern organizations. Explain the role of a DBA (Database Administrator) in managing database systems. (5 marks)**
4. **Explain the concept of process management in an operating system. Discuss the different states of a process and the role of CPU scheduling algorithms in process execution. (5 marks)**
5. **Define cryptography and explain its role in ensuring data security. Discuss the difference between secret-key cryptography and public-key cryptography. (5 marks)**
6. **Describe the different types of secondary memory devices, such as magnetic tape, magnetic disk, and optical disk. Discuss the characteristics and applications of each type of storage device. (5 marks)**
7. **Discuss the importance of IT strategic planning in aligning technology initiatives with organizational objectives. Explain how IT strategic planning helps organizations achieve business goals. (5 marks)**
8. **Explain the concept of Internet of Things (IoT) and its applications in various industries. Discuss the potential benefits and challenges of implementing IoT solutions. (5 marks)**
9. **Define the term "computer security" and discuss the various types of security threats faced by computer systems. Explain the role of security mechanisms such as firewalls and intrusion detection systems in mitigating these threats. (5 marks)**

**\*\*BEST WISHES\*\***

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**SET – B**

**Exam Roll No…………….**

Attempt any two questions: (10\*2=20)

1. **Examine the impact of information technology (IT) on organizations and individuals, highlighting both the positive and negative consequences. Discuss how IT strategic planning aligns with organizational objectives to drive business results and maintain competitiveness in the digital age. (10 marks)**
2. **Define the concept of a database system and differentiate between file-oriented and database-oriented approaches. Discuss the components of a database system, including users, software, hardware, and data, and explain the architecture of a database system with reference to internal, conceptual, and external levels. (10 marks)**
3. **Discuss the architecture of the internet, including the roles of clients, local and regional ISPs, and the backbone infrastructure. Explain the TCP/IP protocol suite and its significance in enabling communication and data exchange across the internet. (10 marks)**

Attempt any eight questions (5\*8=40)

1. **Explain the concept of computer memory hierarchy and its significance in enhancing system performance. Provide examples of different memory types at various levels of the hierarchy. (5 marks)**
2. **Define the terms "analog" and "digital" computers, and provide examples of their applications in real-world scenarios. Highlight the key differences between analog, digital, and hybrid computers. (5 marks)**
3. **Discuss the importance of input/output (I/O) devices in computer systems. Provide examples of human data entry devices and explain their respective functionalities. (5 marks)**
4. **Describe the components of a computer's central processing unit (CPU), including the arithmetic logic unit (ALU), registers, and control unit. Explain the role of each component in executing instructions. (5 marks)**
5. **Compare and contrast the characteristics of different types of computer networks, such as LAN, MAN, and WAN. Discuss the advantages and limitations of each network type. (5 marks)**
6. **Explain the concept of memory allocation in computer systems. Discuss the advantages and disadvantages of multiple partition allocation and paging schemes. (5 marks)**
7. **Define the term "operating system" (OS) and explain its main objectives in managing computer resources. Provide examples of popular operating systems and their respective features. (5 marks)**
8. **Discuss the importance of security awareness in preventing cyber threats. Explain how organizations can promote security awareness among employees to safeguard sensitive information. (5 marks)**
9. **Describe the fundamentals of data representation in computers, including numeric, alphabetic, and alphanumeric data. Explain the significance of different number systems in data storage and processing. (5 marks)**

**\*\*BEST WISHES\*\***