



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRICAL ENGINEERING

FIRST SEMESTER EXAMINATION, 2020/2021 ACADEMIC SESSION

COURSE TITLE: COMPUTER SYSTEM ENGINEERING

COURSE CODE: EEE 419

EXAMINATION DATE:

HOD's SIGNATURE

COURSE LECTURER: ENGR. J.O. OGUNNIYI & ENGR. OYEWOLE

TIME ALLOWED: 2 HRS 30 MINS.

INSTRUCTIONS:

1. ANSWER FIVE QUESTIONS ONLY
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

PART A

Question 1

- a. Juxtapose why the Computer System is categorized as a complex system. **2 Marks**
- b. System complexity has different perspectives in many fields including Engineering but there are common signs of complexity. List and discuss four (4) signs of system complexity known to you. **6 Marks**
- c. Discuss reasons for the choice of Asynchronous multiplexing in computer data communication network over Isochronous multiplexing **3 Mark**

Question 2

- a. Mr Tajudeen intend to transfer #25, 000 from his Gtbank account to his daughter Opeyemi using Zenith Bank. Write an algorithm for the transfer of the said amount without the concept of atomicity. Further identify the problem with the implementation of such algorithm in a database system. **4 Marks**

- b. Epileptic power supply is a major problem in Nigeria. This has resulted in the failure of some system during operations. Discuss how to safe guide the values in the database of such system especially during each failure, and ensure integrity of such system.

4 Marks

- c. Copy and complete the lock-compatibility table below with either **Yes** or **No**.

Lock mode	Exclusive (X-lock)	Share (S-lock)	Update (U-lock)
Share (S-lock)			
Exclusive (X-lock)			
Update (U-lock)			

4 Marks

Question 3

- a. Discuss 3 design considerations for network communication. **6 Marks**
- b. Justify the use of multiplexing techniques in Network based devices and technologies **2 Marks**
- c. Write a standard read instructions for a variable M with explicit locking calls. **4 Marks**

SECTION B

Question 1

- A. Explain the following terminologies (i) Reliability (ii) Failure (iii) Availability (iv) Down Time (v) Run Time (vi) MTBF (vii) MTTR (viii) MTTF
- B. Five oil pumps were tested with failure hours of 45, 33, 62, 94 and 105. What is the MTTF and failure rate?

Question 2

- A. Explain the term system security and mention some essential services provided by a secure system.
- B. 300 cars have accumulated 45000 hours, 10 failures are observed. What is the MTBF? What is the failure rate? Considering the car as repairable system.

Question 3

- A. What is information Security and what are the primary focus of information security. What are treat to information security.
- B. 10 components were tested. The components, not repairable, failed as follows: Component 1,2,3,4,5 failed after 75,125, 130, 325, 525 hours respectively. Find the failure rate and mean time till failure.