EKITI STATE UNIVERSITY, ADO-EKITI

DEPARTMENT OF COMPUTER SCIENCE

FIRST SEMESTER 2020/2021 SESSION EXAMINATIONS

COURSE CODE/TITLE: CSC 301/COMPUTER ARCHITECTURE

INSTRUCTIONS: ANSWER Q1, Q2 AND ANY OTHER TWO QUESTIONS

1. a. Give a plausible definition for Computer Architecture

   b. Give three examples each of Architectural attributes and Organizational Attributes as regards Computer Architecture.

   Operational unit and interconnect

   c. Describe the terms function and structure of computer systems.

   d. Describe the four basic functions and four main structural components of the computer.

2. a. Discuss the major structural components of the C.P.U.

   b. Describe the three key concepts of the von Neumann architecture.

   c. Describe the key differences in the hardware and software "form of programming" described in the von Neumann architecture.

3. a. The CPU and memory are normally connected by three groups of connections, each called a bus. Describe the three (3) types of buses used in computer systems.

   b. Describe the following terms: Instruction processing, Program execution, Instruction cycle, Interrupt.

   c. With the aid of a diagram, describe the Basic Instruction Cycle based on the simplified two-step description.

4. a. What is the name of the register that holds the address of the instruction to be fetched next from memory?

   b. List and briefly explain five important instruction set design issues.

   c. A computer has 32 MB (megabytes) of memory. How many bits are needed to address any single byte in memory?

   d. A computer has 128MB of memory. Each word in this computer is eight bytes. How many bits are needed to address any single word in memory?

5. a. Consider the sign magnitude form of representing integers. Hence, using 4 bits, convert 5 to its positive and negative equivalents.

   b. Consider the one's complement form of representing integers. Hence, using a byte, store -36

EKITI STATE UNIVERSITY, ADO-EKITI
DEPARTMENT OF COMPUTER SCIENCE
B Sc. Degree Exam. First Semester 2020/21 Session
Title: Computer Networks (CSC305) **Units:** 3
Instruction: Answer Questions 5 & 6 and any Three Others Time: 2Hrs

QUESTION 1

a. Networks come in many sizes, shapes and forms. They are usually connected together to make larger networks, with the Internet being the most well-known example of a network of networks. There is considerable confusion in the literature between a computer network and a distributed system.
   i. Give the key distinction between them.
   ii. Explain the term middleware.

b. Expatiate on the use of Computer Networks under the following headings.
   i. Business Applications
   ii. Home Applications
   iii. Mobile users
   iv. Social Issues

QUESTION 2

a. Discuss or explain the following Network terms.
   i. PHISHING ATTACK, ii. BOTNET ATTACK, iii. DDoS, and VoIP.
   ii. List the format in which Data can be represented in Network data communications.

b. Ekiti State University, Ado – Ekiti , Vice – Chancellor **Professor Edward OLANIPEKUN** has decided to make the School not only Wordily First Class rated University but to be the best in the Universe, in view of this mission or goal, he has promised to make it a paperless University. You as a Computer expert he had called you to come and offer your expertise advice on the effectiveness of data communications system. **Center your advice on fundamental characteristics of data communications system.**

QUESTION 3

a. Communication between two devices can be simplex, half-duplex, or full-duplex
   i. With the aid of sketch explain in detail this statement.
   ii. Write short notes on the following Network criteria.

1. Performance, 2. Reliability and 3. Security

b. In a network connections there are nine (9) computers.

i.. Calculate the numbers of channels or connections in this Topology.

iii. List the advantages and disadvantages of a MESH topology.

QUESTION 4

a. BAMADET NIGERIA LIMITED has decided to Network all her branches within the Global Village. The Managing Director in Person of President Agbaboy, Omo Baba place an advert on paper, Television and Radio calling you as a Computer Expert to come and advice the company on the most efficient Network Topology that will be economically good and provide accurate, timely and proper delivery. Give the reasons why you select the said topology.

b. i. Mention the three common types of Networks you know

ii.Explain in detail two of the mentioned Network.

QUESTION 5

a. Describe or give the full meaning of the following acronyms:

i. OSI, ii, ISO, iii. TCP, iv. MAC, v. LLC, vi. PPP, vii. SMTP, viii. POP, ix. FTP and x. ICMP.

b. i. List all the layers found in OSI

ii. Expatiate on the Physical and the Application layers.

QUESTION 6

a. In a tabular form compare and contrast the OSI and TCP/IP Models.

b. Discuss the various ways you can describe NETWORKS

EKITI STATE UNIVERSITY, ADO – EKITI
FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE

COSE CODE: CSC 309 COURSE TITLE: SYSTEM ANALYSIS AND DESIGN
SESSION: 2020/2021 TIME: 2 HOURS
INSTRUCTION: ATTEMPT ANY FIVE QUESTIONS

QUESTION 1.

a. i. Describe the term called system in two or more deferent ways.
ii. Explain the constraints or difficulties that are facing systems.

b. Write short notes on the followings:
i. Systems Development.
ii. Systems Analysis
iii. Systems Design

QUESTION 2.

a. i. State in details the focuses of the items:
a. Systems Design
b. System Analysis and Design.
c. System analysis specify on what?

b. i. Explain all the five characteristics of a system.
ii. With the aid of Diagram describe in full details the elements of a system.

QUESTION 3.

a. Describe in details in schematic of tabular and triangular form of three categories of information related to managerial levels and the decision managers make.

b. Expatiate on the three information you labelled on the pyramidal diagram in question 3(a) above.

QUESTION 4.

a. With the aid of flow system models display the deferent phases of Software Development Life Cycle.

b. i. State the steps that system study phase passes through.
ii. The initial system study involves the preparation of a 'System Proposal'. State about five points out of what the proposal should take care in the light of the user requirements.

QUESTION 5.

a. After having the user acceptance of the new system developed, the implementation phase begins. Implementation is the stage of a project during which theory is turned into practice. The major steps involved in this phase are:

b. The hardware and the relevant software required for running the system must be made fully operational before implementation. The conversion is also one of the most critical and expensive activities in the system development life cycle. The data from the old system needs to be converted to operate in the new format of the new system. The

database needs to be setup with security and recovery procedures fully defined. During this phase, all the programs of the system are loaded onto the user's computer. After loading the system, training of the user starts. Main topics of such type of training are:

QUESTION 6.

a. After the users are trained about the computerized system, working has to shift from manual to computerized working. The process is called 'Changeover'. In view of the above expatiate the following terms.
   i. Direct Changeover
   ii. Parallel Run
   iii. Pilot Run

b. The documentation of the system is also one of the most important activities in the system development life cycle. This ensures the continuity of the system. There are generally two types of documentation prepared for any system.
   i. Mention the types of the documentation
   ii. Explain each of the documentations.

EKITI STATE UNIVERSITY, ADO-EKITI
DEPARTMENT OF COMPUTER SCIENCE
B Sc. Degree Exam. First Semester 2020/21 Session
Title: Electronic Commerce Technologies **Course Code:** CSC 311 **Units:** 2
Instruction: Answer Any Four Questions in ALL **Time:** 2Hrs

1a. In five paragraphs, highlight the key problems with outsourcing.
b. The eCommerce market continues to grow very rapidly, despite the world economic crisis and the negative effects of COVID-19 pandemics. Discuss?
c. "Coronavirus (COVID-19) rules have heightened demand for remote work solutions greatly, with Microsoft and Zoom making billions from their video calling services." From the above statement, what are the steps that Google is taking in making the best use of the opportunity provided by COVID-19?

2a. As an e-commerce trader/merchant that offers services to customers on daily basis, can one truly call oneself customer-focused? Hence, briefly, discuss the secret Keys to customer focused eCommerce.
b. Kalakota and Whinston (1997) refer to a range of different perspectives for eCommerce. Highlight them in four paragraphs.
c. Discuss the three primary concepts that underpin the nature of eCommerce.

3a. Brief discuss how the COVID-19 crisis accelerated the expansion of eCommerce towards new firms, customers and types of products.
b. Highlights how policy makers leveraged the potential of digital transformation in retail and related areas to support business adaptation and to enhance social distancing, while ensuring that no one is left behind.
c. Highlight the features of eBusiness.

4a. In five paragraphs, discuss the benefits/importance of trade and commerce.
b. In about six (6) points, discuss how eCommerce benefitted consumers in the year 2020/2021 especially during Coronavirus COVID-19 lockdown.
c. Briefly discuss the waves of eCommerce

5a. According to Abbakin, (2018), describe the three (3) top Nigeria Online e-commerce stores.
b. As documented by Stan, (2020), discuss any four (4) out of the ten (10) top eCommerce business ideas and opportunities in Nigeria.
c. Alongside the considerations of usability, in about three (3) paragraphs, discuss any three (3) other aspects of the eCommerce site that developers are sure to consider during the development process.

DEPARTMENT OF COMPUTER SCIENCE

FIRST SEMESTER 2019/2020 SESSION EXAMINATIONS

COURSE CODE/TITLE: CSC 313/OBJECT ORIENTED PROGRAMMING **3 UNITS**

INSTRUCTION: ANSWER 1, 2 AND ANY OTHER TWO QUESTIONS **TIME ALLOWED: 2HOURS**

1. a. Outline the differences between Procedural programming and OOPS?

   b. Which one of the following is NOT TRUE about Object-Oriented Paradigms (OOPs):

      i) OOP is a set of techniques and processes focusing on how to analyze and model a real world problem and to design a solution.

      ii) The intended benefits of OOP are to solve the "software" crisis, break complexity into small manageable chunks, and make software maintenance easier.

      iii) OOP allows reuse of components – plug and play

      iv) OOP solves the entire problem in one program.

   c. What is the range of signed integer type variable in C++?

   d. i. Discuss the difference between runtime and compile time errors
   ii. Would you rather have an error discovered at run time or compile time?

2. a. Write a C++ conditional statement that implements the table below, where age is an integer and school is a string. Both variables have been declared and grade has been initialized to a value greater than or equal to 1:

If **age** is:	Set **school** to:
1, 2, 3	KG
4,5	Nursery
6,7,8,9,10,11	Primary
12,13,14,15,16,17	Secondary
> 17	Tertiary

   b. Convert the following into a valid C++ expression: 18.5 ≤ limit ≤ 78.5.

   c. What will the statement "for (; ;)" cause when run in C++?

3. i. Differentiate between classes and objects.

   ii. Design a class called ISBN to represent an International Standard Book Number, or ISBN for short. The ISBN consists of 10 digits divided into 4 parts. For example, the ISBN 0 941831 39 6 represents the following information:

EKITI STATE UNIVERSITY, ADO-EKITI
DEPARTMENT OF COMPUTER SCIENCE
B Sc. Degree Exam. First Semester 2020/21 Session
Title: Object-Oriented Programming (**CSC 313**) **Units:** 3
Instruction: Answer Questions 1, 2 & any two others **Time:** 2Hrs

---

1. a. Give a plausible definition of the Object-oriented paradigm.
   b. List five (5) of the characteristics of Procedural programming.
   c. List five (5) of the characteristics of Object-oriented programming.

2. a. List five (5) of the differences between C and C++.
   b. Describe in detail, the following OOP concepts: Objects, Classes, Inheritance, Data Abstraction, Encapsulation.
   c. Which of the features of the OOPS gives the concept of reusability?

3. a. Create five (5) classes of your own and fill up with at least 2 objects that are a proper illustration of that class.

   b. Define the following terms: ADT, data/information hiding

4. a. Define access modifiers/specifiers and list the types that have been defined in C++.
   b. Explain the essence of the keywords "static" and "void" in C++ programming.
   c. Data types in C++ are mainly divided into three types. Discuss with examples of three examples each of the types.

5. a. What is the output of the following program?

```
#include<iostream>

using namespace std;
main() {
  const int a = 5;

  a++;
  cout<<a;
}
```

   b. Write a C++ code segment to find the reverse of a number.

6. a. Write a C++ program to find the average of a student's scores in three sections of a single subject and allocate the average as a final grade (A, B, C, D, or F) to the student.

   b. Explain the concept of type conversion for class to basic type and the rules for carrying out such conversion.

FACULTY OF SCIENCES, COMPUTER SCIENCE DEPARTMENT
1ST SEMESTER, 2020/2021 BSc. EXAMINATION

COURSE TITLE: INTRODUCTION TO DATABASE MGT. SYSTEM **COURSE CODE:** CSC 315
INSTRUCTION: ATTEMPT ANY FOUR QUESTIONS **TIME ALLOWED:** 2HRS

Question 1:

a) Explain with examples the following: relation, relations schema, relational database schema, domain, tuples, and relation cardinality.
b) SQL statements are divided into three categories, DDL, DML, and DCL. Differentiate with two examples each.
c) With the aid of a well-labeled diagram, describe the components of a database system.

Question 2:

a. What is the output of the queries below:
   i. Query: SELECT name, cid FROM student, enrolled WHERE student.sid = enrolled.sid AND enrolled.grade = 'C'
   ii. SELECT student.name, enrolled.grade FROM student, enrolled WHERE student.sid = enrolled.sid AND enrolled.cid = '15-415' AND enrolled.grade IN ('A', 'B')
   iii. ALTER TABLE ENROLLED DROP COLUMN Sid; Deletes a table

b. What are the merits and demerits of indexing?
c. Name the different data models that are available for database systems

Question 3:

a) With examples, explain the following types of joins in RDBMS: (i) Inner Join; (ii) Outer Join; (iii) Self Join
b) What are the available techniques for query optimization?
c) Consider the following database schema:
Student(StudID,SName,SAddr) SELECT
Transcipt(StuID, DeptCode, CrsNum, Semester, Grade)
   i. Write an SQL query that generates a table of all information of the students taking courses in the department with DeptCode 'CS'
   ii. Give the naïve translation of your SQL query into the relational algebra (as given by the general translation of SQL to relational algebra) SELECT

Question 4:

a) What is a transaction?
b) Why does a DBMS interleave the actions of different transactions instead of executing transactions one after the other?
c) What must a: (i) user guarantee for a transaction and database consistency?
(ii) DBMS guarantee for concurrent execution of several transactions and database consistency?

Question 5:

Consider the database schema below for Baseball game:
Team(Name, Games, Wins, Losses, Conference)
Player(Name, Hits, AtBats, HomeRuns, Team)
Player.Team -> Team.Name

Four pts
Four pts

Write SQL queries for the following:
a) Find the average number of wins and losses across teams
b) Find the average number of wins and losses per conference
c) Find the average number of home runs per conference