UNIVERSITY OF GHANA

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B.A/BSc. INFORMATION TECHNOLOGY: FIRST SEMESTER UNIVERSITY EXAMINATIONS: 2016/2017

CSIT 101: INTRODUCTION TO INFORMATION TECHNOLOGY

(3 CREDITS)

INSTRUCTION:

Answer ALL questions in Section A and any TWO questions in Section B

STUDENTS ARE ADVISED TO SPEND TEN MINUTES READING AND PLANNING

TIME ALLOWED:

TWO AND HALF ($2^{1/2}$) HOURS

SECTION A

1. Select the statement that best describes Read-Only Memory (ROM).

A. non-volatile, used to store information that changes during system operation

B. non-volatile, used to store information that does not change during system operation

C. volatile, used to store information that changes during system operation

D. volatile, used to store information that does not change during system operation

1. Why is RAM called a volatile memory?

A. They do not lose memory when power is removed.

B. They lose memory when power is removed

C. They’re easy erase

D. They take a short time to save data.

1. A way of organizing data on a disk pack to minimize seek time uses _____.

A. Sequential files

B. Cylinders

C. Sequential order

D. Hashing

1. What does VGA stand for in computing?

A. Video Graphics Array

B. Visual Graphics Array

C. Volatile Graphics Array

D. Video Graphics Adapter

1. Which of the following best describes static memory devices?

A. memory devices that are magnetic in nature and do not require constant refreshing

B. memory devices that are magnetic in nature and require constant refreshing

C. semiconductor memory devices in which stored data will not be retained with the power applied unless constantly refreshed

D. semiconductor memory devices in which stored data is retained as long as power is applied

1. In a network, the computer that stores the files and process the data is named as

A. Server

B. Terminal

C. Modem

D. All of the above

1. Computer Viruses are called that because;

A. They are disease causing agents

B. They can copy themselves and spread

C. Both (a) and (b)

D. None of the above

1. In computers, CPU speed can be measured in

A. BPS

B. MIPS

C. Hz

D. MPI

1. The base 2 equivalent of 33.6875_{10} is

A. 100001.1101

B. 100001.1001

C. 100001.1011

D. 100011.1101

1. ENIAC stands for _____.

A. Electrical Numerical Integrator and Calculator

B. Electronic Numerical Integrator and Computer

C. Electronic Numerical Integrator and Calculator

D. Electronic Number Integrator and Calculator

1. _____ represents raw facts, where-as _____ is data made meaningful.

A. Information, reporting

B. Data, information

C. Information, bits

D. Records, bytes

1. Second Generation computers were developed during

A. 1949 to 1955

B. 1956 to 1965

C. 1965 to 1970

D. 1970 to 1990

1. General purpose computers are those that can be adopted to countless uses simply by changing its

A. Output device

B. Input device

C. Processor

D. Program

1. Convert $ABCD_{16}$ to binary

A. 1110 1101 1001 0010

B. 1010 1011 1100 1101

C. 1000 0100 0010 0001

D. 1000 0111 1110 0001

1. The result of adding hexadecimal number A6 to 3A is _____.

A. DD

B. E0

C. F0

D. EF

1. Instructions and memory address are represented by _____.

A. Character code

B. Binary codes

C. Binary word

D. Parity bit

1. One MB is equal to _____.

A. The amount of RAM in every computer

B. 1 billion bytes

C. 1024KB

D. 1 thousand bytes

1. Which statement is valid?

A. 1 MB = 2048 bytes

B. 1 MB = 1000 kilobytes

C. 1 KB = 1000 bytes

D. 1KB = 1024 bytes

1. EBCDIC stands for

A. Extended Binary Coded Decimal Interchange Code

B. Extended Bit Code Decimal Interchange Code

C. Extended Bit Case Decimal Interchange Code

D. Extended Binary Case Decimal Interchange Code

1. Zipping a file means

A. Encrypting the message
B. Compressing the message
C. Transferring the message
D. All of the above

1. _____ is known as unauthorized access into other systems.

A. Hacking
B. Encryption
C. Decryption
D. None of the above

1. Number systems defines how

A. Different symbols can be represented using alphanumeric characters
B. A number can be represented using distinct symbols
C. Alphanumeric characters can be represented using different symbols.
D. All characters can be represented using symbols.

1. Which of the following are advantages of CD-ROM as a storage device?

A. CD-ROM is an inexpensive way to store large amount of data and information.

B. CD-ROM disks retrieve data and information quickly than magnetic disks do.

C. CD-ROM make less errors than magnetic disks.

D. None of these

1. Cache memory enhances _____

A. Memory capacity

B. Memory access time

C. Secondary storage capacity

D. Secondary storage access time

1. Numbers are stored and transmitted inside a computer in

A. Binary form

B. ASCII code form

C. Decimal form

D. Alphanumerical form

1. Determine the values of A, B, C, and D that make the sum term $\overline{A} + B + \overline{C} + D$ equal to zero.

A. A=1 B=0 C=0 D=0

B. A=1 B=0 C=1 D=0

C. A=0 B=1 C=0 D=0

D. A=1 B=0 C=1 D=1

1. The gates required to build a half adder are _____.

A. XOR gate and NOR gate

B. XOR gate and OR gate

C. XOR gate and AND gate

D. Four NAND gates

E.

1. With regards to the internet, a _____ is a set of rules

A. Domain

B. Hypertext

C. URL

D. Protocol

1. The operating system called UNIX is *typically* used for_____

A. Desktop computers

B. Supercomputers

C. Web servers

D. All of these

1. To move the insertion point to the address box, or to highlight the URL in the address box you have to press _____.

A. ALT + D

B. ALT + A

C. SHIFT + TAB

D. CTRL + S

1. What is the primary motivation for using Boolean algebra to simplify logic

expressions?

A. It may make it easier to understand the overall function of the circuit.

B. It may reduce the number of gates

C. It may reduce the number of inputs required.

D. All of the above

1. Which of the following is a valid website address

A. www.ughana

B. www.ughana.com

C. www.ughana@.com

D. ww#.ughana.com

1. The first Digital Computer introduced, was named as :

A. Univac

B. Mark-I

C. ENIAC

D. All of these

1. The interval from the time of submission of a process to the time of completion is termed as

A. waiting time

B. turnaround time

C. response time

D. throughput

1. The following are components of a database except _____.

A. User data

B. Metadata

C. Reports

D. Indexes

1. The BCD value for 45.82_{10} is

A. 01000101.10000010_{BCD}

B. 01111000.10000010_{BCD}

C. 11110000.10000010_{BCD}

D. 10000011.10000010_{BCD}

1. The usual way of expressing decimal number in terms of a binary number systems is known as

A. Gray codes

B. Pure binary coding

C. Binary decimal coding

D. None of the above

1. In Computer Security, _____ means that the information in a computer system can only be accessible for reading by authorized parities.

A. Confidentiality

B. Integrity

C. Availability

D. Authenticity

1. Security procedures _____.

A. Will eliminate all computer security risk

B. Can reduce but not eliminate risks

C. Are prohibitively expensive

D. Are inaccessible for the average home user

1. One of the most important specifications of magnetic media is the _____.

A. Rotation speed

B. Tracks per inch

C. Data transfer rate

D. Polarity reversal rate

1. _____ is the science that attempts to produce machines that display the same type of intelligence that humans do

A. Nanoscience

B. Nanotechnology

C. Simulation

D. Artificial intelligence

1. If two numbers are added, overflow occurs if

A. One number is positive and the other is negative

B. Both numbers are either negative or positive

C. A and B

D. None of the above

1. The time taken by CPU to retrieve and interpret the instruction to be executed is known as _____.

A. Instruction cycle

B. Fetch cycle

C. Both (A) & (B)

D. None of these

1. Assembly language is known as_____

A. High-level languages

B. Low-level languages

C. Machine code languages

D. None of the above

1. The processes that are residing in main memory and are ready and waiting to execute are kept on a list called

A. Job queue

B. ready queue

C. execution queue

D. process queue

FILL IN THE BLANKS

1. An _____ cannot occur after an addition if one number is positive and the other is negative.

1. The computer system is made up of the _____, storage, input and output components.

1. _____ saw the emergence of the keyboard, monitor and operating system.

1. A _____ is a very personal computer. It should be worn like a piece of clothing, as unobtrusive as possible.

1. In a _____the position a symbol occupies in the number determines the value it represents.

1. _____ translates Boolean logic into electronic form which can easily be implemented in the computer circuitry.

1. In Boolean if X=1 and Y=0, YX + (X+Y) = _____.

1. In Boolean if X=0 and Y=1, Y(Y) = _____.

1. In Boolean if X=0 and Y=1, Y NAND X = _____.

1. In Boolean, _____ is when output is determined solely by inputs.

1. The _____ input two bits and output a sum and carry.

1. All data and programs must be loaded in _____ first before they are executed.

1. _____ are SRAM chips on the motherboard - They operate at much lower speed than CPU but much faster than ordinary memory.

1. A _____ is a device that is used to put information into or get information out of the computer.

1. The police radio is an example of _____ transmission mode.

SECTION B

B1

a) List and briefly explain the two main types of software and give examples each. **(5 marks)**

a) Discuss the following operating systems

I. Single user, multi-tasking operating system

II. Single user, single-tasking operating system

III. Server operating systems

(6 marks)

a) Convert the following numbers

I. 107.6875_{10} to base 2

II. 190_{10} to base 16

III. $6FA.A_{16}$ to decimal

IV. 100111_{BCD} to decimal

V. 191_{8} to base 2

VI. 78.872_{10} to BCD

(6 marks)

a) Mention one universal gate

(1 mark)

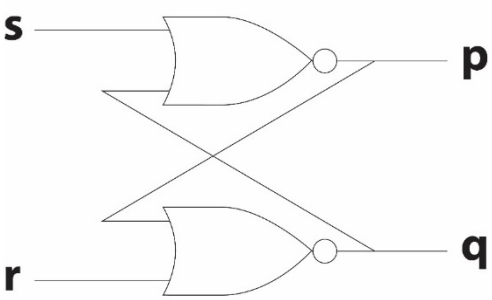
a) List two database environments.

(2 marks)

B2

a) What does DBMS stand for in Databases and what are its main functions?

(3 marks)



a) What type of logic circuit is the above diagram?

(1 mark)

a) Construct the truth table for the logic circuit above.

(4 marks)

a) Convert 37.75 into floating point format to fit in 32 bit register.

(5 marks)

a) List and briefly explain the three major components of the CPU.

(6 marks)

a) Give one example of a common computer attack.

(1 mark)

B3

a) What is multi-tasking?

(1 mark)

a) What is a computer? State the four distinct parts of a computer system.

(6 marks)

a) Briefly explain the following components of a database

I. Field

II. Record

III. Foreign key

IV. Primary key

(4 marks)

a) List any three network topologies you are familiar with.

(3 marks)

a) Perform the following binary arithmetic

I. Add $(1111011)_2$ to $(1010111)_2$

II. Add $(01101101)_2$ to $(101110)_2$

III. Subtract $(101011)_2$ from $(10110111)_2$

(3 marks)

a) Briefly discuss the Peer to Peer network.

(3 marks)