UNIVERSITY OF ESWATINI

Faculty of Science and Engineering

Department of Computer Science

RESIT EXAMINATION
January 2020

Title of Paper: COMMUNICATION FUNDAMENTALS

Course Number: CSC121

Time Allowed: 3 hours   Total Marks: 100

Instructions to candidates:
This question paper consists of FIVE (5) questions.
Answer Question 1 and three others.
Marks are indicated in square brackets.
All questions carry equal marks.

SPECIAL REQUIREMENTS:

NO CALCULATORS ALLOWED

Question 1

(a) Define the following terms. [5]

    (i) Grid computing

    (ii) Booting

    (iii) Software

    (iv) encoding

    (v) Virtualization

(b) Convert "USE" to the language understood by computer hardware. Note that the ASCII decimal equivalent for A is 65. [5]

(c) List the four main types of computers giving an example for each. [8]

(d) Discuss one disadvantage of the nonintegrated motherboard over the integrated motherboard. [2]

(e) How does the BTX motherboard achieve a quitter configuration? [3]

(f) How many bytes make up 1GB? [2]

Question 2

(a) Would it be possible to install a 32 bit operating system to a 64 bit CPU computer? Explain. [3]

(b) Why should CPU's have a low clock speed? [2]

(c) What is a multicore processor? [1]

(d) A 2.6 GHz dual core processor is compared with a 3.2GHz single core processor. Which one is faster in terms of processing? Explain. [3]

(e) A computer loses its date and time settings each time it is disconnected from power for some time and plugged back again. What might be the problem with this computer? [2]

(f) Explain the function of the three main components that make up a computer's CPU. [6]

(g) What is the difference between dynamic RAM and static RAM? [2]

(h) Discuss what a synchronous DRAM is. [2]

(i) What are the following computer ports used for; [4]

    (i) Ethernet port

    (ii) HDMI port

Question 3

(a) Explain how you use system restore to solve software issues. [4]

(b) What is cloning? How is it used to solve software issues? [4]

(c) A technician has just finished installing a new version of an OS on a computer and he discovers that he no longer gets sound output from his speakers. What might be the problem? [2]

(d) State whether each of the following is an operating system software or utility software or application software. [5]

    (i) MS DOS

    (ii) Microsoft word

    (iii) Sound drivers

    (iv) Avira antivirus

    (v) Windows 10

(e) Anti-virus software is system software. True or false? [1]

(f) Defining the two terms. [4]

    (i) Partition

    (ii) Format

(g) Outline the boot sequence. [5]

Question 4

(a) Match the seven layers of the OSI reference model with the corresponding TCP/IP layers. [5]

(b) Outline the operation of the TCP protocol. Discuss how connection is established and how reliability is achieved. [5]

(c) Discuss four functions of the network layer. [8]

(d) List three types of transmission media. [3]

(e) Differentiate between bandwidth and speed of a link. [2]

(f) What is the function of the Domain Name Service (DNS) protocol? [2]

Question 5

(a) What is artificial intelligence? [1]

(b) Give two advantages of using artificial intelligence. [2]

(c) What is the difference between type 1 and type 2 hypervisors? [2]

(d) List the three main part of an IoT system. [3]

(e) What do we mean by Software as a service in cloud computing? Give an example of when you would use this service. [3]

(f) RAM is said to be volatile. What does this mean? [2]

(g) What would happen should the data in ROM get corrupted? Explain. [2]

(h) Explain what happens at each network layer as data is sent from one device to the other. N.B. on the sender's side. [10]