"Investing in Africa's Future"

COLLEGE OF BUSINESS PEACE, LEADERSHIP AND GOVERNANCE

CSC 302 COMPUTER HARDWARE AND SOFTWARE CONCEPTS

END OF FIRST SEMESTER EXAMINATIONS

MAY 2020

LECTURER: MR A.C MUZENDA

DURATION: 48 Hours

INSTRUCTIONS

Answer ALL questions in Section A and any ONE question from section B

Total possible mark is 100

Start **each** question on a new page in your answer Booklet.

The marks allocated to **each** question are shown at the end of the section.

SECTION A [60 marks]

Answer all questions in this Section
QUESTION 1

XYZ is an Pharmaceutical organization that was mainly formed to deal with the Covid -19 pandemic. Due to increase in demand of products used to minimize the spread of Covid -19, the management have decided to integrate ICT in their day to day work related activities. Selecting computer hardware and software for the organization is an important management decision to improve business performance and productivity, while reduces cost for unnecessary aspects. The organization want to implement a Server based network system and has approached you as an IT expert to advise them accordingly and help them to implement the technology.

i. Justify the need for hardware and software knowledge when integrating ICT in XYZ business.   [10]
ii. Highlight on major factors to consider when buying hardware and software.[10]
iii. Advice them on the tools they will require to set up an IT workshop for support and maintenance. (List and explain any ten (5) major tools and equipments as well as their uses).   [10]
iv. Come up with the ICT policy document that will help XYZ organisation to implemement the technology in their day to day activities. Include the following subheadings in your Policy document (Not more than 8 pages);   [30]

Contents

FOREWORD
PREFACE
List of Abbreviations

1.0 INTRODUCTION
    1.1 Background
    1.2 About XYZ
    1.3 Statement of commitment
    1.4 Scope
    1.5 Audience
    1.6 Monitoring and Evaluation

2.0 FUNDAMENTAL STATEMENTS

    2.1 Vision
    2.2 Mission
    2.3 Strategic objectives:
    2.4 Core Values

3.0 OBJECTIVES OF THE POLICY
PART I: - ICT USAGE POLICY
    Section A - Password Usage Policy
    Section B - Change Management Policy
    Section C - Acceptable Use Policy
    Section D - Email Usage Policy
    Section E- Internet Use Policy
    Section F - Software Usage policy
    Section G - Hardware Management and Use Policy

PART II: - ACQUISITION AND DISPOSAL POLICY
    Section A - Hardware Acquisition and Disposal Policy
    Section B - Software Acquisition and Disposal Policy

PART III: - SECURITY POLICY

    Section A - Workstation Security Policy
    Section B - Email Security Policy
    Section C - Physical Security Policy
    Section D - Backup Policy
    Section E - Disaster Recovery Policy
    Section F - Server Audit Policy
    Section G - Internet Security Policy
    Section H - Information Security Policy
    Section I - Human Resource Security Policy

PART IV: ICT TRAINING POLICY

    Section A - Training Policy
    Policy Review

SECTION B (40 MARKS)

Answer any one question

QUESTION 2

a. Is it possible to upgrade a machine's processor? Justify why or why not.   [6]
b. As an Information Technology expert, you have been asked to design an electronic voting system which is used for SRC elections for the University. Four people take part in the electronic voting D, E, F and G. Each has a button that provides logical input to a circuit. For voting against (input= 0) and input =1 (voting for). Construct a truth table for a circuit to determine the majority vote. Note that D is the chair of the committee and if the vote is evenly split, the chair's vote wins. Draw a truth table to represent all voting outcomes.   [8]

i. From the truth table, derive an expression for the output of the circuit in its most simplified form. [8]
ii. Draw a circuit to implement the voting mechanism using AND, OR and NOT gates. [6]

c. As an IT technician you deal with many clients everyday. With the aid of practical examples explain the importance of customer care in relation to IT servicing and maintenance. [6]

d. Explain how the microprocessor handles interrupts. [6]

QUESTION 3

a. A company in which you are working has approached you the technician as ask whether to buy UPS or SPS to prevent power blackout. What would you advice them to do and why? [8]

b. Your customer wishes to have a machine configured for both the Linux operating system and Microsoft Windows 7. The computer has only one hard drive. Identify which file system you would recommend and explain the reasons for your choice. [6]

c. You are working in a computer Lab and the fire just started. Outline the safety procedures or steps taken to address the fire problem. [10]

d. Define parallelism and outline and describe the three main architectures using some visual aids. [10]

e. Explain the difference between a von nuemann and havard architecture. Which component in the von Neumann architecture acts as the stage manager. Explain. [6]

QUESTION 4

a. Brriefly explain the P-A-S-S basic rules of fire extinguisher operation. [8]

b. You're employed as computer technician at certain company and the management has decided to upgrade their memory from 2Gb to 4Gb of RAM. You are given a task to install new RAM and upgrade the RAM to 4gb. Outline the precautions to be taken when installing the new RAM to avoid ESD. [10]

c. You're employed as computer technician at BrickIT company and one of the employees called, saying she is failing to connect to the intranet network. Educate her on how to perform basic troubleshooting inorder to solve the problem. Also state the possible causes of the problem and suggest the possible solutions. [10]

d. Prove the following Boolean expressions and draw the combinatorial circuit diagrams for the minimized expressions where applicable.
i. $C + AC + (A+C)(AD + AD) \equiv A + C$ [7]
ii. $ABC + \bar{A}B + AB\hat{C} \equiv B$ [5]