**Name:…………………………………………………………………………..Class:……..AdmNo:…….**

**COMPUTER STUDIES 451/1**

**FORM 3 - OPENER EXAMINATION TERM 3, 2022**

**SEPTEMBER 2022**

**TIME: 2HOURS**

**SECTION A (40 MARKS)**

**ANSWER ALL QUESTIONS FROM THIS SECTION**

**1.** Explain how each of the following would affect the suitability of a room for use as a computer room.

(a) Burglar proofed door (1mk)

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(b) Availability of taps and sinks in the room (1mk)

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2. Distinguish between special purpose keys and editing keys on a keyboard, with an example.

(3mrks)

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3. Two features of Von Neumann architecture are the use of registers and the use of buses. Give the names of any **two** registers and **two** buses. (2mrks)

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1. Nicolae needs to send 30 photos to a friend and he chooses to send all 30 together as a single email attachment. Each photo is 1.8 MB in size, but the maximum possible attachment size is only 20 MB. State how Nicolae can solve this problem. (2mrks)

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1. What is portability and Authenticity in relation to software specification? (2 marks)

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1. Describe each of the following data processing methods (6mrks)
2. Batch processing.

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1. Distributed processing

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1. Multiprogramming

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1. (a) Distinguish between firmware and device drivers as used in computers. (2mrks)

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1. Differentiate between the terms **upgradability** and **compatibility** in relation to hardware specification. (2mrks)

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1. State two differences between Disk Operating System (DOS) and WINDOWS operating system. (2mrks)

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1. Publishing firms prefer using DTP instead of Word processors. Giveany TWO reasons for this. (2mrks)

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1. Banks have replaced each credit card with a smart card, which contains a microchip, in order to give greater protection against fraud. State **three** items of data that are stored on the microchip in a smart card. (3mrks)

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1. Explain three ways how one can manage his/her disks using windows. (3mrks)

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1. Define the following terms as used in data representation. (4mrks)

Amplitude

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Nibble

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Byte

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1. Failure of information systems is a major concern in the security of data in computing systems. State **two** causes of such failure. (2mrks)

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**SECTION B (60 MARKS)**

***Answer Question 16 (compulsory) and any other THREE questions from this section.***

1. a) Give three types of errors that may be detected during program testing (3mrks)

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b) State any three activities that occur in a program compilation process. (3mrks)

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c) A program is needed for calculating the average age of students in a class. Write a pseudocode that will read the age of the students and calculate the average age. The program should terminate if the value of 999 is entered for age and output the number of times the statements within the loop were executed. (9 marks)

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1. (a) Subtract 01112 from 10012 (2mks)

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 (b) Using two’s compliment, subtract 7 from 17 and give the answer in decimal notation. (4mks)

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 (c) Convert

 (i) 91B16 to octal (3mks)

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 (ii) 3768 to hexadecimal (3mks)

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 (iii) 9.62510 to binary (3mks)

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1. i) (a) Give four reasons why a firm may decide to computerize its operation. (4mks)

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(b) An individual has a right to demand guarantee to privacy of personal information stored on a computer. Give three such types of information (3mks)

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ii) A passenger logs onto an airline website and types in the reference number for their flight. Once the passenger accesses their account they can choose their seat and also print out a boarding pass which contains a unique barcode. This barcode is scanned at the airport check-in desk.

* 1. Name **one** input and **one** output device found at the check-in desk and give a reason for your choice. (2mrks)
	2. The training department of an international airline has introduced computer based training (CBT) to teach foreign languages to its cabin crew. Give four advantages of using CBT. (4mrks)

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iii) State any four ways the computers can be used in a hospital. (2mrks)

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1. a) A student set up a spreadsheet to compare share prices in six companies over five years.



(i) What formula is in cell G5 to find the mean share price for KLN? (2mrks)

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(ii) What formula is in cell H5 to find the highest share price for KLN? (2mrks)

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 (iii) If the data in cell E4 was changed to 425, which cells would be automatically updated? (2mrks)

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 **(iv)** State the cells that are needed to create a line graph to show the share prices for years 2006 to 2008. (2 marks)

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 (v) The student wants to extend the spreadsheet to include share prices for 2010. Describe how the student would do this. (2mrks)

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b) Describe the following terms with reference to security of data:

(i) Log files (1mk)

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 *(*ii) Firewalls. (1mk)

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 (c) List three functions of antivirus software. (3mks)

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20. A students' database comprises of students1 details table and fees received table as shown below:

**Students' details table Fees Received table**

Surname Admission Number

Middle Name Amount

Admission Number Date

First Name Receipt Number

Course

a) i) State the primary key field for each table. (2mks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ii) State the field, which should serve as the linking field for the two tables. (2mrks)

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iii) Name three types of relationships that can be applied in database design. (3mrks)

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c) Bunam Water Company sends out field officers to take consumer meter readings. The data collected by the officers is then keyed into the computer. The system then generates utility bills which are printed and sent to the consumers.

i) State two transcription errors that are likely to occur during meter reading or input. (2mrks)

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ii) State three ways such errors can be avoided (3mrks)

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d) Mention at least three trends in the technological revolution of computers. (3mrks)

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