***Name…………………………………………………………………………………………………… Class…………………………………***

***Index No. …………………………………………………………………………………………. Date………………………………..***

***Signature …………………………..***

**451/1**

**COMPUTER STUDIES**

**Paper 1**

**(Theory)**

**NOVEMBER/DECEMBER 2021**

**2½ hours.**

***@West practice papers-2021***

COMPUTER STUDIES

**Paper 1**

**(Theory)**

**NOVEMBER/DECEMBER 2021**

**2½ hours.**

**INSTRUCTIONS TO CANDIDATES**

This paper has **TWO** sections; **A** and **B**.

Answer **ALL** the questions in section **A**

Answer **question 16** and any other **three** questions from section **B.**

All answers should be written in the spaces provided on the question paper.

**For Official Use Only**

|  |  |  |
| --- | --- | --- |
| **SECTION** | **QUESTIONS** | **SCORE** |
| A | 1-15 |  |
| B | 16 |  |
|  | 17 |  |
|  | 18 |  |
|  | 19 |  |
|  | 20 |  |
|  | TOTAL |  |

**This paper consists of** 16 **printed pages**

**Candidates should check the question paper to ensure that all the printed pages are printed as indicated and no questions are missing.**

**Section A**

***Answer all questions from this section***

1. State 2 measures to put in place in the computer lab to safeguard users health 2marks

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1. Distinguish between embedded and dedicated computers 2marks

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1. State 2 limitations of entering data into a computer system using a touch sensitive input device 2marks

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1. (a) Differentiate between dynamic and static RAM 2marks

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(b) Define Solid-state storage and give two examples.                          2marks

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1. State 3 ways in which barcode readers may be used in schools 3marks

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1. State 3 circumstances under which voice input would be preferred over other methods of data capture 3marks

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1. In relation to DTP state the purpose of frames 1mark

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1. The figure shows toolbar for a DTP package

B

A

**T**

C

State functions of tools labeled 3marks

A…………………………………………………………………………………………..

B…………………………………………………………………………………………..

C…………………………………………………………………………………………….

1. Describe the following 2marks
	1. Master file

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* 1. Transaction file

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1. State any 3 benefits that a company would gain from distributed processing as their data processing method 3marks

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1. State two
	1. Functions of an email software 1mark

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* 1. Protocols used in sending and receiving emails 1mark

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1. A school has been advised to employ a database administrator state 3 responsibilities of this personnel in the school 3marks

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1. What is the difference between a Gas Plasma Display and Liquid Crystal Display 2marks

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1. (a) Explain how a pixel affects the resolution of a monitor.                    1mark

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 (b) List two types of computer output on microform (COM).                2marks

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© Differentiate between *high definition multimedia interface* and *Firewire* interface. 2marks

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1. A warranty is an agreement between the buyer and the seller. It spells out terms and conditions after selling a product in case of failure or malfunction. Describe any three basic requirements a good warranty should cover.                               3marks

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**Section B**

**Answer Question 16 (Compulsory) and Any other 3 Questions from this section.**

1. (a) With the aid of a flowchart differentiate repeat until from while loop control structures 4marks

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1. State 2 types of translators used in programming 1mark

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1. On the Nairobi-Nakuru highway, the Kenya Police have put speed cameras at a certain point to read the time a vehicle passes a point (A) on the road and then reads the time it passes a second point (B) on the same road. (Points A and B are 200 meters apart). The speed of the vehicle is calculated using:

*Speed =* $\frac{100}{(time at point B-time at point A)}$ *(Km/ hr)*

*The maximum allowed speed is 100 kilometers per hour.*

*500 vehicles were monitored using these cameras over a 1-hour period.*

Write a pseudo code, which: 5marks

* + 1. Inputs the start time and the end time for the 500 vehicles that were monitored
		2. Calculates the speed for each vehicle using the formula above.
		3. Outputs the speed for each vehicle and a message if the speed exceeded 100 km/hour.
			1. >=100km/hr “High Speed”
			2. <100km/hr “Normal Speed”

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(D) Draw a flow chart for the above pseudo code. 5marks

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1. (a) State any three advantages of using computers in computer aided design (CAD) 3marks

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1. The training department of an international airline has introduced computer based training (CBT) to teach foreign languages to its cabin crew. Give TWO advantages of using CBT. 2marks

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1. The airline also trains its pilots.
	1. What type of training is most appropriate to train pilots to manage dangerous situations? 1mark

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* 1. Give TWO benefits of using this type of training. 2marks

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



1. What formula is in cell G5 to find the mean share price for KLN? 1mark

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1. What formula is in cell H5 to find the highest share price for KLN? 1mark

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1. If the data in cell E4 was changed to 425, which cells would be automatically updated? 1mark

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

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1. The student wants to extend the spreadsheet to include share prices for 2010. Describe how the student would do this.2marks

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1. (a) The following are some of the phases in the system development life cycle SDLC system analysis, system design, system implementation, system review and maintenance, state 3 activities that are carried out during the system implementation phase 3marks

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(b) Give 3 reasons why system maintenance phase is necessary in SDLC 3marks

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© Various considerations should be made during input design and output design. State two considerations to be made for each case. 4marks

1. Input design

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1. Output design

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1. In relation to database
	1. Differentiate between bound and unbound controls 2marks

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* 1. Outline 2 features of a primary key 2mark

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* 1. What is a composite key 1mark

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1. (a) Explain 2 ways in which operating system provides data security in a computer system 2marks

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(b) Differentiate between pull down and pop up menu as used in graphical operating system 2marks

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c) Describe the following wireless communication devices. 3marks

1. Access point (AP)

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1. Wireless Antenna

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1. PCMCIA cards

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(c) Mr. Bill, the Principal of a school wishes his school to have an internet connection in a bid to improve its service delivery. Mention four internet connectivity requirements that must be present to enable the connection. 2marks

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(e) (i) Failure of information systems is a major concern in the security of data in computing systems. State two causes of such failure. 2marks

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 (ii) Explain the following computer crimes.

1. Fraud 1mark

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1. Industrial espionage 1mark

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(f) Excluding passwords, state two other security control measures used to guard against unauthorized access to computers in a network. 2marks

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1. (a) Write in full
	* 1. ASCII 1mark

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* + 1. EBCDIC 1mark

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 (b) Convert each of the following binary numbers to decimal equivalent given that the leftmost digit is a sign bit

1. 00101101 2marks

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1. 11001001 2marks

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 c) In a certain coding scheme a letter P was coded as 11011001 how would letter K be represented in the same scheme 4marks

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1. Using 6 bits and twos complement subtract 23 from 17 leaving your answer in decimal notation 5marks

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