COMPUTER PAPER 1 MARKING SCHEME

1. State two functions of uninterruptible power supply (ups). (2 marks)

- ***Power supply temporarily during black out***
- ***Power surge protectors and voltage stabilizer***

2. State **two** practices to be observed in order to ensure the safety of the computer user. (2mks)

- **Computer room should be well lit to avoid eye strain**
- **Avoid over bright wall paints that reflect too much light causing eye strain**
- **Adjust brightness of the computer monitor until the eyes feel comfortable before using the computer**
- **Use/fit the monitor with radiation filter screens**
- **Avoid using flickering monitor**
- **Seat for the user must be comfortable and have a straight backrest that allows someone to sit upright**
- **Take frequent breaks while working with a computer**

3. State three features of fifth generation computers. (3 marks)

- ***Use of expert system***
- ***Support the use of natural language***
- ***Support distributed computing***
- ***Support artificial intelligence and voice recognition.***
- ***Support parallel processing***
- ***Small in size/ portable***
- ***Superior hardware and software***
- ***consume less power***

4. A printer fails to work as expected when a document is sent to be printed. The user has checked that the on-line light of the printer is on and the printing paper is correctly inserted. Give ***TWO*** other possible reasons why the printing process failed. (2mks)

- The printer not being set to default
- A problem with the picking of papers
- Configuration of the printer to a wrong port

5. State **three** ways in which barcode readers may be used in schools. (3 marks)

- ***Take inventory of items***
- ***Transactions in the school library***
- ***Keep track of movement of goods***
- ***Track students in and out of school***

- ***Used to register roll call***

6. State **three** advantages of flat panel monitors over cathode ray tube monitors as used in computers. (3 Marks)

- ***Compact and light/portable/less bulky/occupy less space***
- ***Consume less power***
- ***Low angle distortion***
- ***Improved color depth***
- ***Higher resolution***
- ***Have less radiation***
- ***Produce less heat***

7. Which application package can be used to accomplish the following tasks?(3 marks)

(i) Computing budgets - S***preadsheet***
(ii) Creating documents - ***Wordprocessor***
(iii) Designing brochures – ***Desktop Publishing***

8. Explain the purpose of the following in a computer

i) System clock (1Mark)

Microchip that generates pulses per second that regulates the timing and speed of all computer functions

ii) Power supply unit (1 Mark)

It is a device that converts mains A.C to low-voltage regulated DC power for the internal components of a computer.

iii) Heat sink (1 Mark)

Conductive metal device designed to absorb and disperse heat away from a high temperature object such as a computer processor.

9. . Peter was sent to buy computers for the students' laboratory. He was supposed to take into account the following factors.

- ✓ Processor speed
- ✓ Memory capacity
- ✓ Compatibility

Give three main reasons for taking into account the above factors (3Marks)

- *Processor speed determines the kind of programs to install, if it is fast multitasking can be possible, bigger programs can be executes with ease*

- *Memory is important when looking at king of programs to installed, the speed of the computer; it can be slow because of swapping if the memory is low.*

10. Most operating systems provide a *file system*. Mention any TWO file systems used in windows environment (2Marks)
    - *FAT(file allocation table)*
    - *FAT16*
    - *FAT32*
    - *NTFS(new technology file system)*

11. (a) What is disk defragmentation? (1mark)

- It is the process of reorganizing data on a hard drive so that related pieces of data are stored together in contiguous blocks

(b) State the purpose of disk defragmentation (2mks)

- Improves System Performance
- Faster Boot Times
- Efficient Use of Storage Space
- Better File Management

12. a) What is a section break as used in word processing? (1mk)

- a section break marks the end and beginning of a section in a document

b) State two section breaks that can be used in a word processor (2mks)

- Odd
- Even
- Continuous
- Next

13. Koge entered the value 2724742560 in a cell of a spreadsheet. After pressing enter the cell displayed ############

a) Give a reason why the numbers entered where not displayed as expected (1 Mark)

The length of the value entered is more than the column width of the cell

b) Suggest **two** ways what you would do to correct the situation so that entered numbers can be displayed as expected (2 Marks)

Increase the column width
Format the value(by changing the font size or font style)

14. State the following types of transcription errors. (2Marks)

(a) 3455 instead of 3456

Misreading errors

(b) nuon instead of noun

Transposition

15. Name three negative social impact of ICTs in the 21st century. (3 marks)

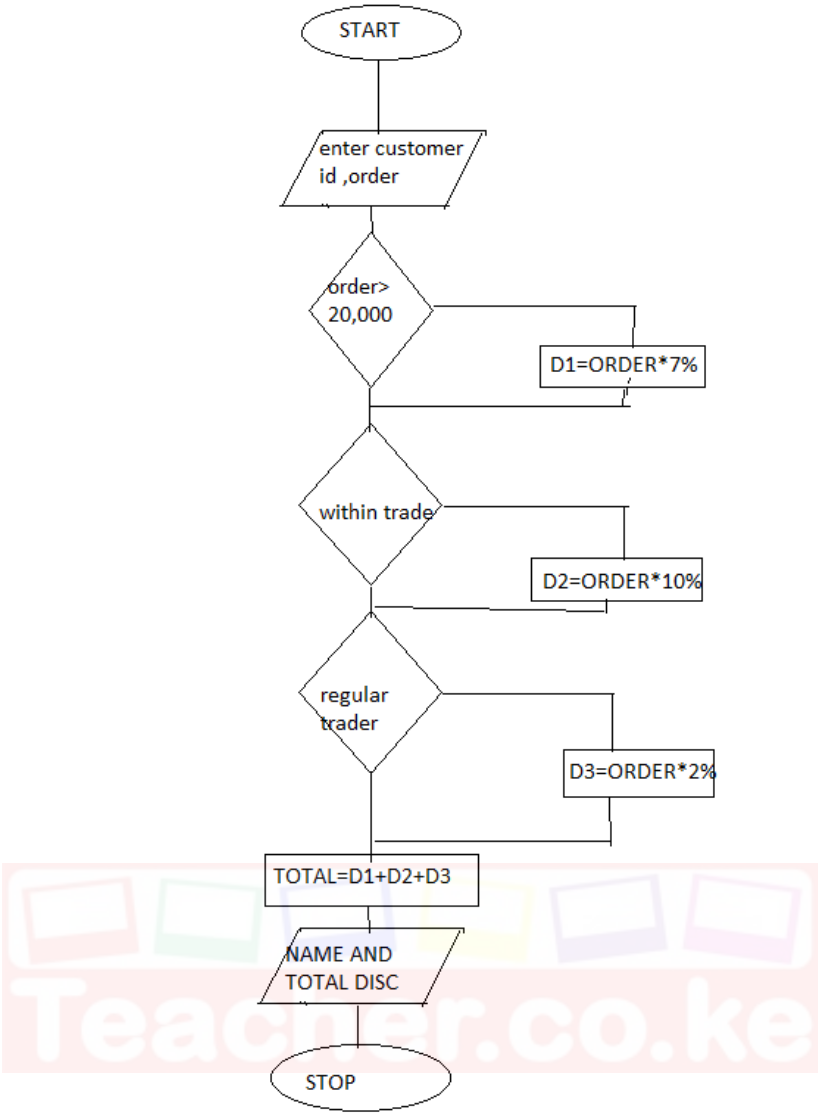
- ***Internet addiction***
- ***Privacy violation***
- ***Exploitation through Pornography***
- ***Crime - fraud on the internet***
- ***Cyber terrorism***
- ***Recruitment to drug trafficking/drug abuse***

16. (a) Describe three methods you would use in error detection during program testing (6mks)

- **Desk checking (dry-run)** – going through the program while still on paper
- **Using debugging utilities** – enter the program editor where syntax errors are detected during translation
- **Using test data** – carries out trial runs
- **Various data variations** and extreme including good and bad data are entered to see how the program would handle them

(b) When invoicing customers, the invoice clerk has to work out the discounts allowable on each order. Any order over 20,000/= attracts a "bulk" discount of 7%. A customer within the trade is allowed 10%. There is also a special discount of 2% allowed for any customer who has been ordering regularly for over 2 years.

Using a flowchart show clerical procedure for working out discount entitlement. (7Mks)



(c) Name the control structures you have used in the flow chart (2mks)

- **NESTED IF**
- **CASE SELECTION**

17. a). (i) Define the term information system. (1mk)

- **An integration of both manual and computer based processes that produce information to support decision making**

(ii) Differentiate between a closed system and an open system in relation to system boundary. (2mks)

- **A closed system is one that is isolated from its environment and therefore does not interact with it while an open system is one connected to and interacting with its environment**

(iii) Outline the stages of systems development life cycle in their logical sequence briefly describing what takes place at each stage. (7mks)

Stage I Problem recognition

Stage during which a problem is recognized, defined and a feasibility study initiated

Stage II Problem definition

Stage III System Design

At this stage, the proposed system is designed using design trols such as flow charts

Stage IV System Construction &Testing

Programs are coded and tested together with the other system components

Stage V System implementation

This is the stage at which the new system is put to use

Stage VI Maintenance and review

During this stage, repairs, modifications and corrections are done to the implemented system to keep it functional

Stage VI Documentation

(For each stage, ½ mk for identification ½ for explanation

(b) A doctor wishes to use an expert system to help in medical diagnosis.

i) Define the term expert system (1 Mark)

Software that store the knowledge of a human experts and then used as consultant in a particular field or Computer programs that use knowledge base of human expertise for problem solving.

ii) State **three** components that make up an expert system (3 Marks

Knowledge base

Inference engine

User interface

iii) State **one** benefit in each case for the doctor and for the patient who uses the medical diagnosis expert system (1 Mark)

Benefits to:-
Patient: Diagnosis is done faster and precisely without human emotions.
Doctor: Assist in exploring what-if situations during diagnosis. Also the doctor does not need to refer during diagnosis

18. a)Explain the function of the following tools. (2Marks)

i) Pasteboard

ii) MasterPage

b) Give three nonprinting guides used in DTP. (3Marks)

page margins
Column guides
ruler guides

c) . Use the data given in the Excel worksheet below to answer questions that follow.

	A	B	C	D
1	NAME	CLASS	AGE	GAME
2	MARK	1W	13	RUGBY
3	KEN	1W	14	FOOTBALL
4	BILL	1S	14	RUGBY
5	DAVE	1W	15	RUGBY
6	BOB	1S	15	FOOTBALL
7	JACK	1W	14	FOOTBALL

i) Write a function to count the number of students who play Rugby. (1 Mark)

a) = countIF (D2: D7,"=RUGBY")

- Correct function

- Correct values in brackets

ii) Draw a table to display the results after filtering students who play football and their class is 1W. (1 Mark)

	A	B	C	D
1	NAME	CLASS	AGE	GAME
3	KEN	1W	14	FOOTBALL
7	JACK	1W	14	FOOTBALL

d) i) Differentiate between macros and report in a database. (2 Marks)

Set of actions that you can create to help you to automate common tasks. A report is a data base object produces a summary of information held in a database.

ii) List two types of relationship that can be implemented in database tables (2 Marks)

(i) One-One
(ii) One-many
(iii) Many-Many

(e) Identify the most appropriate data type for these fields (2 Marks)

(i) Name: .....text.

(ii) Admission number: .....number/text

(iii) Fees: .....currency

(iv) Gender: .....yes/no,text.

f) From the above fields which field can be used as the primary key field? Explain?

(1 Mark)

Admission number: It identifies the students uniquely because admission number cannot be the same even if the names are the same.

19. (a) Covert the decimal number 7.5625_{10} into its binary equivalent (3 marks)

Convert the two parts separately starting with integer part
$7_{10} = 111_2$
Fraction part
0.5625 X 2 = 1.125
1.125 X 2 = 0.250
0.25 X 2 = 0.500
0.500 X 2 = 1.000
Hence $0.5625_{10} = 0.1001_2$
Thus: 111+0.1001 = 111.1001_2

(b) Using two's complement compute (5mks)

$36_{10} - 25_{10}$

$36_{10} - 25_{10}$

36 -:- 2 = 18RO
18 -:- 2 = 9 RO
9 -:- 2 = 4 R1

4 -:- 2 = 2 RO
2 -:- 2 = 1RO
1 -:- 2 = OR1 100100_2

25 -:- 2 = 12R1
12 -:- 2 = 6RO
6 -:- 2 = 3 RO
3 -:- 2 = 1R1
1 -:- 2 = OR1 11001

$100100_2 - 11001_2$

Make the bits equal

$100100_2 - 110010_2$

Gets one's complement of negative number

i.e.

110010 → 001101_2

Add a 1, to the 1st complement

$$\begin{array}{r} 001101 \\ +\quad 1 \\ \hline 001110 \end{array}$$

Add the two numbers

$$\begin{array}{r} 100100 \\ +\ 001110 \\ \hline 110010_2 \end{array}$$ answer

(c) Describe the following types of files.

i). Master file. (1mk)

A file that holds permanent data in an organization against which transactions are processed.

ii). Backup file. (1mk)

A file created from existing master files to store duplicate copies that can be used to restore the original file in the event of loss or damage.

d). Explain the file organization methods given below.

i). Random. (1mk)

Records are arranged with no particular order and accessed directly.

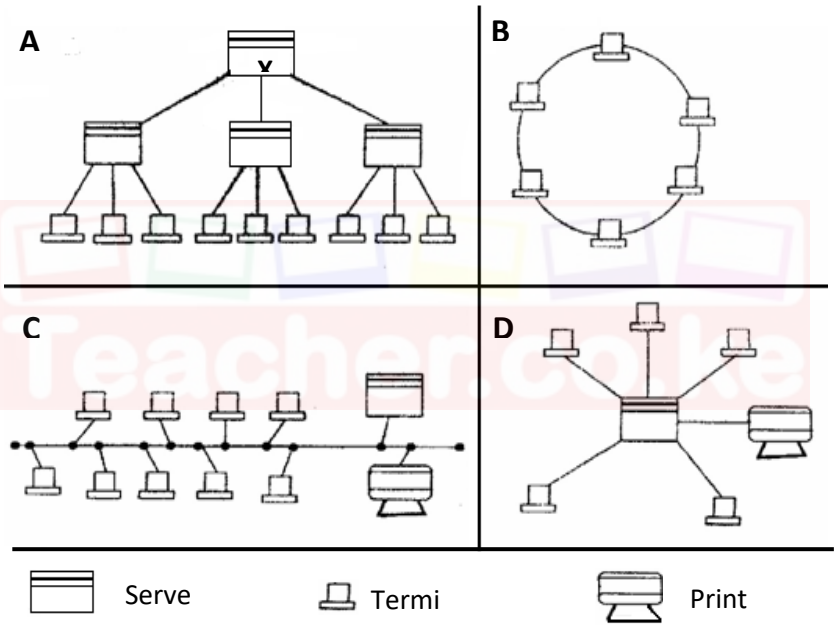
ii). Indexed sequential. (1mk)

Records are arranged on disk in sequence with an index added for easier access

(e) State the methods that can be used to prevent unauthorized access: (3 marks)

- ***Password: A secret word; a string of characters known only to a restricted group for authentication.***
- ***User Access levels: A case where each group is granted different levels of access.***
- ***User Access rights: An individual is granted or denied access.***

20. (a) The diagram **below** shows four common network topologies **A**, **B**, **C** and **D**.



(i) Name the network topologies labeled **A**, **B**, **C** and **D**. (4Marks)

A. Tree/Hierarchy
B. Ring
C. Bus/Multi drop
D. Star

(ii) Explain what happens if server X in topology **A** fails. (1Mark)

The terminal connected to X will be affected/stop communicating with the rest of the network

(iii) List **two** problems associated with network topology **B**. (2 Marks)

- Difficult to trouble shoot"- Failure of one terminal results in network breakdown

- Extra cost of extra NIC card.

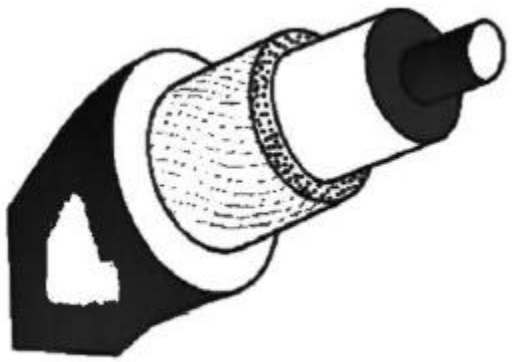
(iv) List **two** disadvantage associated with network topology labeled **D**. (2 Marks)

- Failure of central device/server results in total collapse of network
- Extra cost of cabling as each terminal must be cabled separately to the hub.

(b) Match the following statements with repeater, router or a bridge. (3 Marks)

	STATEMENT	DEVICE
(a)	Operates at data link layer	Bridge
(b)	Determine the best path for data to follow	Router
(c)	Regenerates signals	Repeater

(c) The diagram below shows a cross section of a type of cable used in data communication. Study it and answer the questions that follow.



i. Identify the type of cable (1mark)

Coaxial cable

ii. State two advantages of using this type of cable (2marks)

- They are very stable even under high loads.
- They have a large band width compared other media of communication.
- They can carry voice, data and video signal simultaneously.
- They are more resistant to radio and electromagnetic interference than twisted pair cables