

MARKING SCHEME

1. State **two** reasons why it is advisable to follow the correct procedure when shutting down the computer at all times. (2 marks)

To prevent loss of data/ information
To prevent corruption of files /programs
To protect computer hard disk from crashing

2. Name and give the function of the following key symbols.

- (i) (1 mark)



Name: *Shift key*

Function *Type alternate upper symbol if a keyboard key has two symbols or for typing uppercase letters.*

- (ii) (1 mark)



Name: *Tab/ tabulator key*

Function *this key is used to move the text cursor at set intervals on the same line*

3. A computer virus is a destructive program that attaches itself to other files and installs itself without permission on the computer when the files are opened for use. Give **three** ways in which computers can be protected against virus attack (3marks)

Install the latest versions of anti-virus software on the computers/ frequently updating the antivirus software

Avoid using foreign removable disks in the computer room before scanning them

Scan files or programs before downloading / scanning e-mail file attachments before downloading

Avoid buying pirated software

Disable computer drives if the computers are used by many people

Install firewall to filter information coming through the internet or LAN

Educate computer users on dangers of viruses

1st 3 correct answers @ 1 mark max 3

4. State **three** characteristics of computer main memory (3 marks)

Have limited storage capacity

Store data/information/ programs temporarily

Offers fast access to stored data Download this and other FREE revision materials from <https://teacher.co.ke/notes>

It a working memory

1st 3 correct answers @ 1 mark max 3

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5. 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. (2 marks)

Loose connection of printer data interface cable

Incorrect printer name chosen

Paper jam inside the printer

Data interface cable connected to wrong port

1st 2 correct answers @ 1 mark max 2

6. Describe the following terms as used in computer data security

- a) Firewalls (1 mark)

A firewall is a device or software system that filters the data /information exchanged between different networks by enforcing the host networks access control policy

- b) Audit trail. (1 mark)

A study of an information system by experts in order to establish or find out all the weaknesses in the system that could lead to security threats and weak access points for crimesters.

7. State **four** ways in which computers are used in banks (2 marks)

Transferring money electronically from one place to another by using EFT

Automation of cheque clearing and processing by using MICR

ATMs are used by customers to deposit or withdraw cash

Distributed processing mode has made it possible to share the processing loads among several computers located on different geographical locations but connected by a communication channel

Batch processing mode is used to prepare employees payrolls

N/B check on technology and activity

1st 4 correct answers @ 1 mark max 4

8. A student typed a passage in Microsoft word and the last line of the letter flowed to the second page.

- a) What name is given to such last line that flowed to the second page (1 mark)

widow

- b) State **three** ways in which the student could have the letter to fit one page without changing the paper size (3 marks)

Change page orientation

Change the character font

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- Decrease font size*
 - Reduce page margins*
 - Reduce character spacing*
 - Reduce character line spacing*
 - Change font style (Bold, italic)*
- 1st 3 correct answers @ 1 mark max 3**

9. Explain the following terms as used in Microsoft Excel spread sheet package. (3marks)

a) Range

A selected group of consecutive cells that can be manipulated as a block

b) What if analysis

A feature for forecasting an outcome of an activity changing values in a formula

c) Automatic recalculation

Results of a formula changes automatically if the values in one of the argument is changed.

10. State the data processing mode most appropriate for the following scenarios: (4 marks)

a) To prepare payroll for workers in Central Bank of Kenya

Batch processing

b) For automated production control in a chemical manufacturing industry

Real time processing mode

c) Managing ATMs transactions for KCB Ltd in different towns in the country

Distributed processing mode

d) Prepare examination report forms at the end of an academic year

Batch processing mode

11. A school has decided to network its computers so that it can distribute information to all its Departments. The school also intends to upload the information to parents. The various services are To be provided by servers. Briefly describe the services provided by (3marks)

a) Print server

Manages the printers that are connected to the network or manages the printing of user documents on the network

b) File server

Stores network user's data files

c) Mail server

Stores incoming mails for distribution to local users and sends out outgoing messages

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12. Using an illustration, describe the term text direction as used in DTP (2 marks)



Changing the angular position of text ✓ 1 mark

Illustration ✓ 1 mark

Accepts any correction illustration

13. I) define the following terms as used in a database

A). Attribute

(1 mark)

A column / field name that describes the content of the row / fields under it in a table

b). Database model

(1 mark)

A logical structure of a database that determines the manner in which data can be stored , organized and manipulated

ii) State **two** objectives of normalization as used in databases

(2 marks)

Remove record redundancy

Separate fields, records and tables

Organize related data items into appropriate tables

1st 2correct answers @ 1 mark max2

14. Differentiate between a system administrator and a database administrator as used in computers

(2 marks)

System administrator is a person who is responsible for the upkeep, configuration and reliable operation of computer systems while a database administrator is a person who manages and maintains database management software

N/B accept difference based on their responsibilities

15. State **two** advantages of using automated production in industries

(2 marks)

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- Increased workspace safety*
 - Reduced labour cost*
 - Enhanced product quality*
 - Reduced production lead time*
- 1st 2 correct answers @ 1 mark max 2**

SECTION B

Answer **question 16** and any other **three questions from this section**

16. a) State the best application area for the following programming language (4marks)

- (i) FORTRAN - *developing mathematical & scientific applications*
- (ii) Mercury - *Developing AI application*
- (iii) PHP –*developing web applications*
- (iv) C – *developing system software*

b) State two differences between compiler and interpreter (2marks)

Compiler	Interpreter
<i>Stores both source and object codes – no need for translation every time program is run</i>	<i>Doesn't store object code – translated every time its run</i>
<i>Translates entire source code to object code at once</i>	<i>Translates line by line</i>

c) Study the following pseudocode then answer the questions that follow:

```

Start
  R =2
  While R<=6 Do
    Y=2 + (R^R) + 4
    Print Y
    R = R + 2
  End while
Stop
  
```

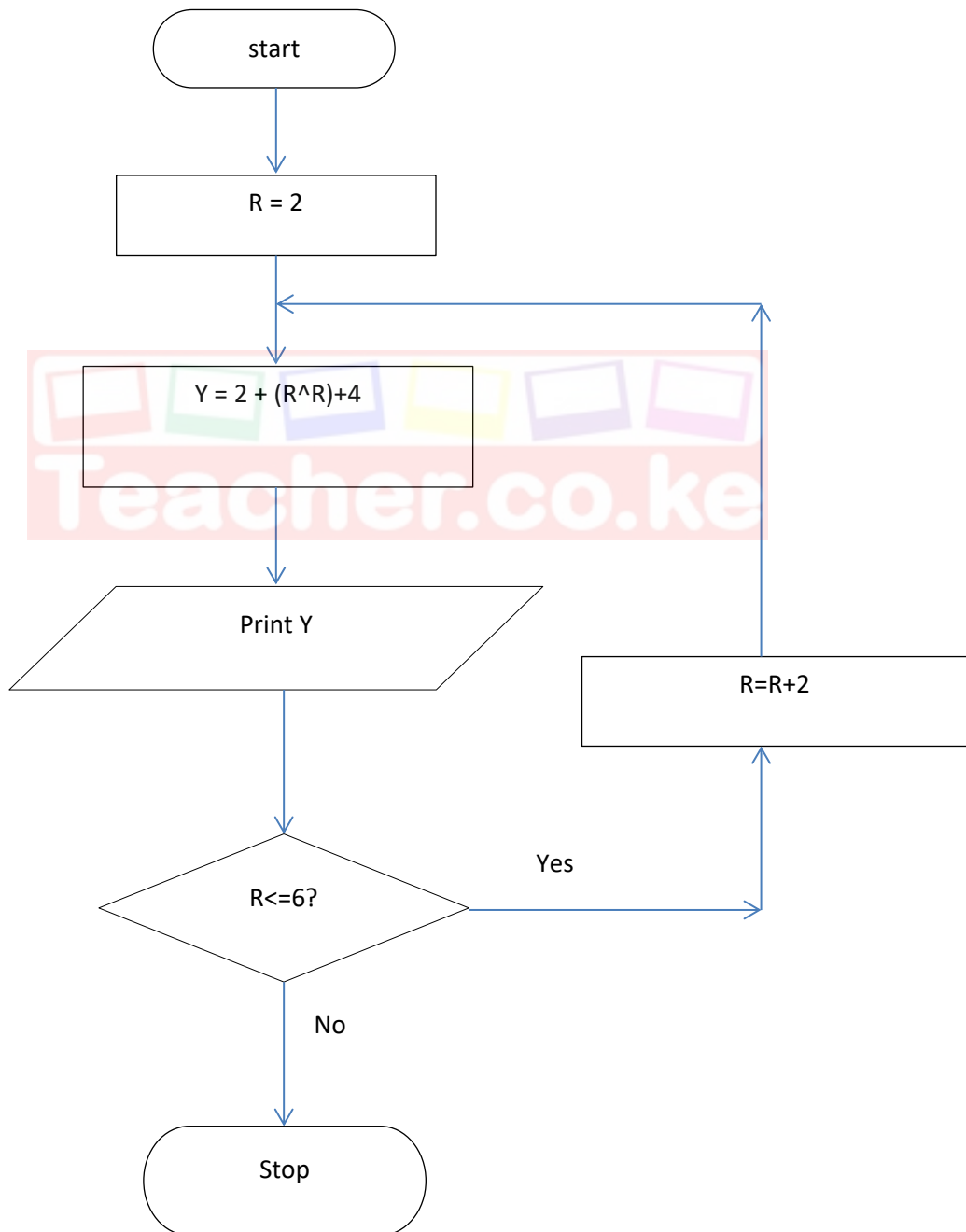
(i) Work out the output from the pseudocode (4marks)

R	Output Y
2	8

4	22
6	42

(ii) Translate the above pseudocode to a flowchart

(4marks)



17.a) Differentiate between the following:

- (i) Intranet and Extranet (2marks)
Intranet – Interconnection of computers within an organisation
Extranet – connection of computers between two or more institutions
- (ii) Modulation and demodulation (2marks)
Modulation is changing data signal from computer/DTE readable form to channel friendly form
Demodulation changing data packets/signal from channel friendly form to a computer readable form
- (iii) Dial-up and direct ISP connection (2marks)
Dial-up – the Internet connection is done on request/ contact e.i. on demand basis
Direct – Internet connection is done always

b) Explain the importance of the following

- (i) Web portal (1mark)
Specially designed website that brings information from diverse sources, like emails, online forums and search engines, together in a uniform way
- (ii) Hyperlink (1mark)
Text/ image that when clicked opens a related web page or website
- (iii) Blog (1mark)
A regularly updated website or web page, typically one run by an individual or small group, that is written in an informal or conversational style

c) Name the parts in the following addresses: <https://teacher.co.ke/notes>

(i) tkariuki@equitybank.co.ke

(2marks)

- tkariuki – user name
- @ - at
- equitybank – host name
- co.ke - domain

(ii) www.starshines.sc.ke

(2marks)

- www – world wide web
- starshines – host computer
- sc – lower level domain (a school)
- ke lower level domain(in Kenya)

d) Explain the concept of teleworking

(2marks)

Combining several data signals into a common high speed and high bandwidth channel to avoid need for many individual transmitting channels

18.a) Fill the gaps in the following table

(6marks)

Category of software	Use	Example
DTP	Preparation of publications	Ms Publisher, Adobe PageMaker, Corel Draw
CAD	Making technical drawings	AutoCAD
Spreadsheets	Used for statistical analysis of values	Ms Excel, Visicalc, Multiplan, Lotus 123

b) Name the disk management activity described below

(5 marks)

- (i) Creates logical drives in a disk - *disk partitioning*
- (ii) Deletes idle files to create more disk space - *disk clean up*
- (iii) Aligns tracks and sectors in a disk - *disk formatting*
- (iv) Allows contents of a file to occupy contiguous sectors for faster access – *disk defragmentation*
- (v) Creation of copies of important files on another drive- *Disk Backup*

c) Explain what the following commands will accomplish once executed

(i) C: \> Copy S* E:

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(ii) D:\>Deltree Subjects

(2marks)

Deletes a tree directory named Subjects (the file together with its contents will be deleted)

19. a) Using examples of a school setup, explain the following changeover strategies

(9 marks)

i) **Straight change over**

It is where the old system is discarded immediately a new one is implemented. E.g. in a school setup, a computerized exam analysis system when put in place, the manual one is discarded immediately

ii) **Parallel change over**

The old system and the new run together until the users are comfortable with the new system. In a school setup, the fees collection is done manually and electronically by writing the bank slip number and the amounts as the students arrive in school and recording the same in a computerized system

iii) **Phased change over**

The new system is introduced in stages until it is fully implemented. Example, the introduction on the new curriculum in education.

Explanation of the concept @ 2 marks, relevant school example @ 1 mark

b) Give two implications of a poorly implemented system change over strategy (2 marks)

- *failure to obtain anticipated benefits*
 - *un expected time slippage*
 - *cost overruns that vastly exceed budgets*
 - *technical shortfalls resulting in performance that is significantly below the estimated level*
- 1st two correct answer @ 1 mark max 2 marks*

c) Explain any two characteristics of a system

(4 marks)

i. Subsystems

- *A system does not exist in solitude but maybe a component of a larger system*

ii. Holistic thinking

- *A system should be considered as a whole unit rather than considering its constituent parts*

iii. Control

- *The method by which the a system adopts to the changes in the environment in order to give the expected feedback to perform to the expected level*

iv. System entropy

- *Systems naturally decay with time due to technological changes, new management policies or change in user requirements*

1st two correct explanation @ 2 marks; Stating @ 1mark, Description @ 1 mark

20. a) Give three ways of representing signed binary numbers in a computer (3 marks)

Ones complement

Twos Complement

Prefixing an extra sign bit

1st 3 correct answers @ 1 mark max 3

b) Perform the following binary arithmetic and leave your answer in denary form (6 marks)

i) $1101.101_2 + 1011.01_2 + 111.11_2$

Ans = 100000.001_2 Conversion = 32.125_{10}

ii) $10001.1001_2 - 1011.111_2$

Ans 1.1011_2 Conversion = 1.6875_{10}

Correct Arithmetic calculation @1 mark Conversion @ 2 marks each max 3marks

c) Convert the following:

i) -34_{10} to twos complement (3 marks)

$34 - 10010$

$1c - 01101$

$+ 1$

$2c - 01110_2$

ii) $7\frac{4}{5}$ to binary (3 marks)

Ans = $111.\dot{1}10\dot{0}_2$

Correct conversion of the integer number @ 1mark, Fraction @ 1mark , correct answer sequence @ 1mark