

COMPUTER STUDIES

FORM 3 END OF TERM 2 2003

SECTION A (40 MARKS)

Answer all questions in this section

1. **Classify computers according to their functionality. Explain each classification (6 marks)**
 - ✓ **Analog** -designed to process data that is continuous in nature at a higher processing speed
 - ✓ **Digital** -designed to process data that is discrete in nature at a reduced processing speed than analog
 - ✓ **Hybrid- designed** to process data that is both continuous and discrete i.e. analog and digital data

2. (a) **State four data types used in MS excel (4 marks)**
 - ✓ Labels
 - ✓ Functions
 - ✓ Formula
 - ✓ Values

(b) **State any four applications of electronic spread sheet (2 marks)**

 - ✓ Financial accounting
 - ✓ Prediction and forecasting
 - ✓ Inventory keeping
 - ✓ Budgeting
 - ✓ Keeping records

3. **Give the functions of the following special memories (2 marks)**
 - i. Buffers
 - ✓ Memory found in I/O devices e.g. printer
 - ii. Cache
 - ✓ Memory that enhances workability of computers

4. **Define the term ergonomic (2 marks)**
 - ✓ Refers to the sitting posture when working
 - ✓ It's a science that determines the best working conditions for humans who work with machine

(a) Explain the importance of good ergonomic in a computer lab (2 marks)

- ✓ Good ergonomic helps in alleviating health related problems such as repetitive strain injury (RSI) back ache stiff neck etc.

5. Distinguish between the following

(a) CRT and TFT monitor (2 marks)

- ✓ CRT consist of a long glass tube with electron gun one end and screen on the other
- ✓ CRT monitor consist of a long glass tube with an election gun on one end and a screen on the other, the election gun shoots electrons to illuminate the screen coated with tiny phosphorous dots while TFT is a form of active matrix display are made using thin film transistors technology and offer better clarity.

(b) OBR and OMR (2 marks)

- ✓ OBR reads products bar code of varying thicknesses while OMR reads detect shades pen or pencil marks on a piece of paper

6. (a) In reference to word processor, define the following terms (3 marks)

i. Word wrap

- ✓ Is a word processing feature in which a word that does not fit in the current line is automatically moved at the start of the next line.

ii. Justification

- ✓ Refers to aligning text on both left on both left and right margin

iii. Drop cap

- ✓ Make the first character of a paragraph occupy more than one line below it

(b) State three editing tools available in most standard word processor software (3marks)

- ✓ Spelling checker /grammar
- ✓ Thesaurus
- ✓ Find and replace
- ✓ Undo and redo

7. (a) state three hardware consideration that need to be made before installing an operating system (3 marks)

- ✓ Processor speed
- ✓ Memory capacity
- ✓ Hard disc capacity

8. State four factors one should consider when acquiring computers Software (4marks)

- ✓ Authenticity
- ✓ Users' needs
- ✓ Available documentation
- ✓ Cost
- ✓ Compatibility
- ✓ Upgradability
- ✓ Portability

9. (a) define the term internet (1 mark)

- ✓ Global interconnection of computers and computer networks for purpose of communication and resource sharing

(b) Explain the following internet related terms

- i. Sign in (1mark)
 - ✓ to enter username and password to authenticate access to your email account
- ii. Search engine (1mark)
 - ✓ It's used in searching for materials from the internet
- iii. Surf (1mark)
 - ✓ Browsing or accessing the internet
- iv. Sign up (1mark)
 - ✓ Registering to have an email-account

SECTION B (60 MARKS)

Answer all questions in this section

10. (a) State and explain three coding schemes used in computing. (6 marks)

ASCII -7 BITS

BCD -4 BITS

EBCDIC -8 BITS

(b) use two's compliment to work out $9_{10} - 4_{10}$ (4 marks)

9=1001

4=0100

Compliment 0100=1011

1011

 + 1

1100+1001

(1)0101

Ignore overflow Ans= 0101₂



(c) Convert 3.75_{10} to binary. (3 marks)

$$3 = 11_2$$

$$0.75 = 0.11$$

$$3.75 = 11.11_2$$

(d) State four number system used in computing. (2 marks)

Binary numbers

Hexadecimal numbers

Octal numbers

Decimal/ denary numbers

11. (a) Distinguish between data security and data privacy as used in computer system. (2marks)

Security –refers to measures taken to ensure data is secure from un authorized access

Privacy -refers to Data that belongs to an individual

(b) State five ways in which data security can be compromised. (5marks)

- ✓ Computer virus
- ✓ Un authorized access
- ✓ Computer errors
- ✓ Theft
- ✓ Accidental access

(c) Discuss 5 solutions to data loss. (5 marks)

- ✓ Install antivirus
- ✓ Having backups
- ✓ Reinforce weak points e.g. grills to avoid people breaking into
- ✓ capture data directly from source
- ✓ Install software that detect data entry errors

(d) Explain the following terms. (3 marks)

i. **Data encryption**

- ✓ It involves encoding data using encryption key that is only understood by the sender and receiver

ii. **Fire wall**

- ✓ A device or software system that filters the data and information exchanged between different networks by enforcing the host network access control policy.

iii. Audit trail

- ✓ Refers to keeping a record or log of all users' activities on a system

12. Before the end of every month, an electricity service provider sends out field officers to take consumer meter reading, the data collected by the officer is then keyed into the computer, the system then generate utility bills which are printed and sent to consumer.

(a) (i) identify this type of data processing mode. (1 mark)

- ✓ Batch processing

(ii) Give three other data processing modes used during data processing (3 marks)

- ✓ Time sharing
- ✓ Real time
- ✓ Online
- ✓ Distributed processing
- ✓ Multi-processing

(B) Explain each of the following types of errors (3 marks)

i. Transcription errors

- ✓ Error that result from incorrect data entry.

ii. Truncation errors

- ✓ Error that results from chopping off the fraction part of a floating-point number

iii. Rounding errors

- ✓ Error that results from rounding up or down the fraction party of the floating-point numbers

(c) Distinguish the following file organization methods

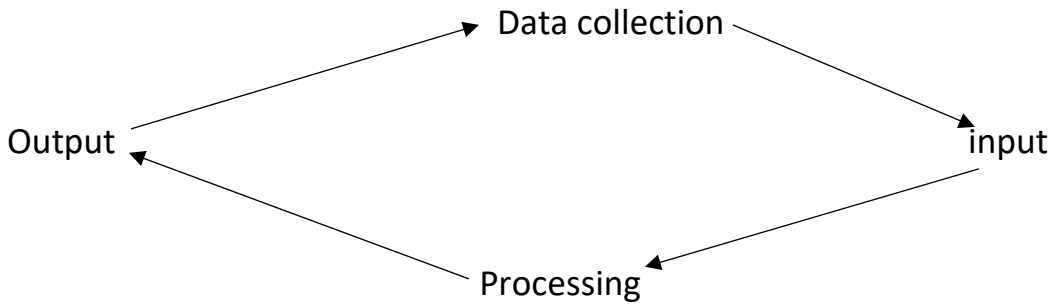
i. Random and indexed sequential

- ✓ Random organization –records are accessed directly in order in which they were stored while indexed sequential records are stored sequentially but accessed by use of an index

ii. Logical file and physical file

- ✓ Logical file is viewed in terms of what data item it contains while a physical file is viewed in terms of how data is stored on a storage device

(d) Using an illustration describe four data processing stages. (4 marks)



13. (a) Define the following terms as used in programming (4marks)

i. Algorithm

✓ Refers to step by step process that a programmer follows in order to solve a problem

ii. Pseudocode

✓ Is a set of structured statement's written using ordinary language expressing the processing logic of a program?

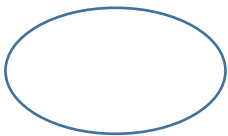
iii. Interpreter

✓ It's a translator that converts each statement of a source code to machine readable form during execution

iv. Compiler

✓ It's a translator that converts entire source code into an object code

(b) Draw four common symbols used in a flow chart and state their purpose (4 marks)



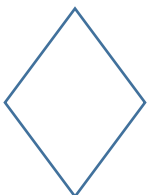
Shows the start or end of the algorithm



Used to input or output operation



Represents processing operations



Represents a decision which must be evaluated true or false

(c) Write a pseudocode for a program that would prompt the user to enter length and width of a rectangle. The program then calculates and display the area and perimeter. (4 marks)

Start

Print " enter length and width "

Read L, W

Area= $L \times W$

Perimeter = $2(L+W)$

Print area

Print perimeter

Stop

(c) Give three disadvantages of low-level programming languages (3 marks)

- ✓ Low levels languages are difficult and cumbersome to use and learn
- ✓ They are requiring highly trained experts to develop and maintain
- ✓ Checking for errors (debugging) low level programs is difficult and time consuming
- ✓ Low level programs are machine dependent hence they are not portable

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