

4.23 COMPUTER STUDIES (451)

4.23.1 Computer Studies Paper 1 (451/1)

SECTION A : 40 Marks

1. **Reasons for warm booting a computer**

- when computer hangs
- when a program encounters an error
- during the installation of new software for the installation to be complete
- during the installation of hardware so that the drivers can be activated.

(Any 2 x 1) = 2 marks

2. **File manipulation activities**

- creation of files/folders
- deletion of files/folders
- moving of files/folders/drop/drag/cut & paste
- copying of files/folders
- viewing of files/folders
- editing of files/folders
- sorting of files/folders
- renaming of files/folders
- Hiding of files/folders

(Any 6 x $\frac{1}{2}$) = 3 marks

3. **Primary and foreign keys**

Primary keys

- TermID
- StudentID

Foreign keys

- TermCode
- StudID

(2 marks)

4. **Advantages of portable computers**

- They have battery that powers the devices hence can be used when where is no power.
- They can be used anywhere because they are light.
- They require less space.
- Technology must be qualified.

(Any 2 x 1) = 2 marks

5. (a) **Acronym MODEM in full**

- Modulator Demodulator/modulation demodulation

(1 mark)

(b) **Purpose of a Modem**

- Convert digital signals to analog format before transmission; and incoming signals from analog to digital before processing.

(2 marks)

6. **Distinguish between an assembler and interpreter**
- **Assembler:** Translators that convert assembly language codes into machine code. (1 mark)
 - **Interpreter:** Translators that convert high level language source code into machine code. (1 mark)
7. **Sources of fire in a computer laboratory**
- Electrical faults;
 - Natural causes e.g lightning;
 - External attacks e.g arsonists/terrorists;
 - Inflammable material;
 - Accidents. (Any 3 x 1) = 3 marks
8. **Benefits of using OMR**
- Helps in minimizing human errors during data input/has high accuracy;
 - It hastens capturing of candidates data /is faster;
 - Cheaper, since it reduces the need for human intervention;
 - Can be used for bulk processing. (Any 3 x 1) = 3 marks
9. **Factors to consider when acquiring a printer**
- Initial cost;
 - Print quality (Number of pixels);
 - Running cost;
 - Speed of the printer;
 - Whether coloured or black & white;
 - Paper size;
 - Nature of work.
 - Volume of work
 - Technology involved eg. printing from storage media. (Any 4 x 1) = 4 marks
10. **Circumstance for voice input**
- When the hands of the user are engaged;
 - When the user has physical disabilities;
 - When faster input is required;
 - When the user is not good in keying skills. (Any 3 x 1) = 3 marks
11. **When firewall is disabled**
- Testing the communication link;
 - When upgrading the firewall;
 - When there is a need to install an application and the firewall is preventing the operation;
 - When the firewall prevents legitimate communication. (Any 2 x 1) = 2 marks
12. **Advantages of mobile phone in payments**
- Easier payment of bills (No queuing)/saves time;
 - Cheaper (qualified);
 - Transactions over wide geographical space;
 - Relatively secure due to audit records. (Any 2 x 1) = 2 marks

13. **Reasons for defining datatypes in databases**

- Memory use optimisation when the program is loaded;
- Assist in trapping errors during data input;
- So that appropriate computation can be performed;
- Increase speed of processing.

(Any 3 x 1) = 3 marks

14. **Uses of system documentation**

- Technical manual referred to during system maintenance;
- User training: it has details of how the system works and used hence used for training new users;
- System progress: the document assists in the tracking of flow from one stage to the next;
- User guide that helps a system user to solve problems since the document outlines how the system is operated and the errors that are likely to occur/installing programs.

(Any 2 x 2) = 4 marks

15. **Distinguish between systems administrator and database administrator**

- Systems administrator is responsible for all parts of computer network such as user accounts, computer accounts, domain trusts, email accounts;
- Database administrator deals with only aspects of database such as database server and client software.

(2 marks)

SECTION B : 60 Marks

16. (a) **Web programming languages**

- **HTML** - Hypertext Mark-up Language
- Java script
- **VBScript** - Visual Basic script
- **XML** - Extensible Markup Language
- **PHP** - Hypertext Preprocessor
- **SQL** - Structured Query Language
- Dream weaver
- Front page

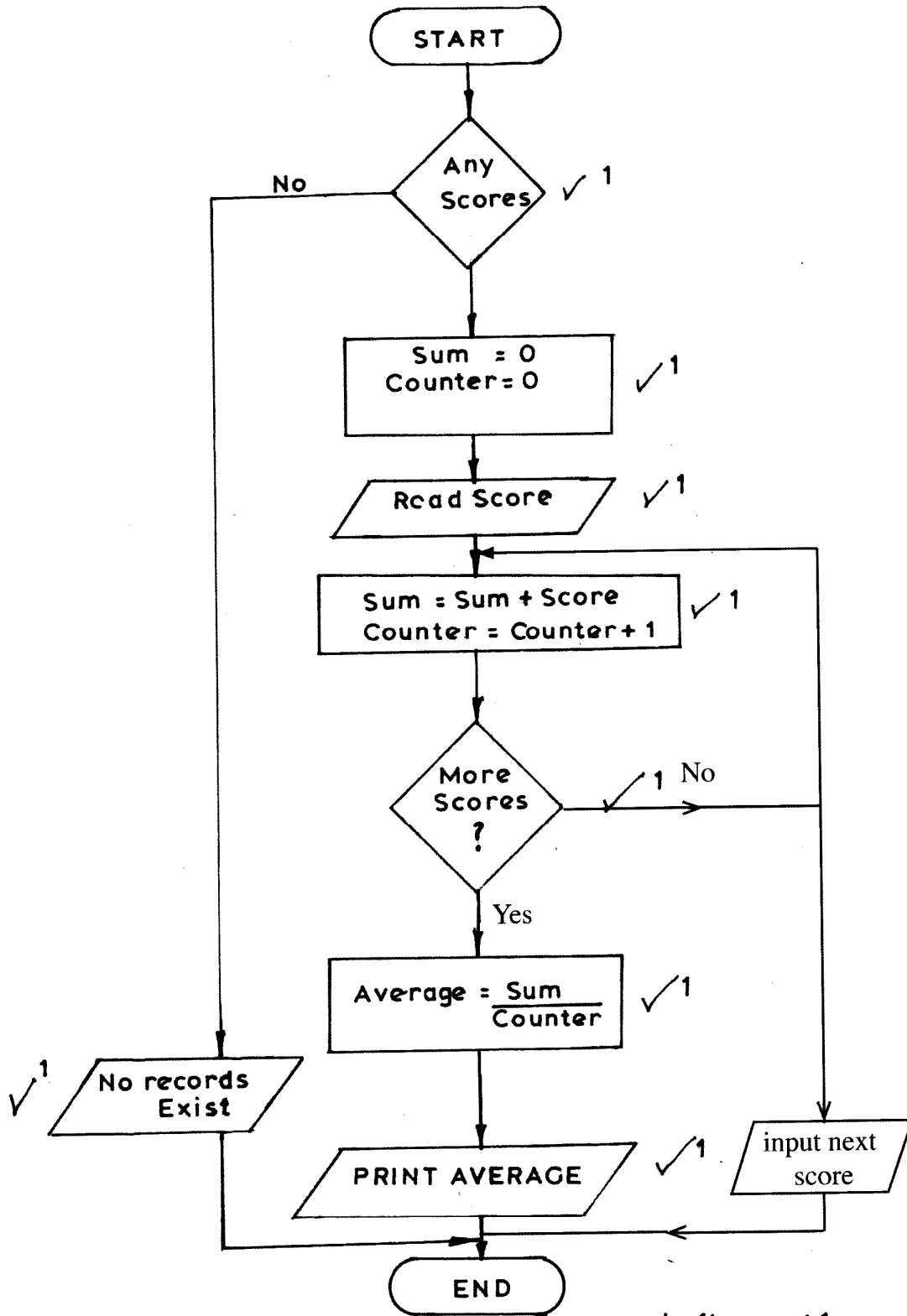
(Any 4 x $\frac{1}{2}$) = 2 marks

(b) **Ways to make program code easy to follow:**

- Using modules or short blocks of program/functions/procedures;
- Making internal documentation / comments;
- Using meaningful variable names and user words in the program;
- Using indent to represent nested statement;
- Using blank lines to separate blocks of code statement;
- Test formatting of reserved words eg. bolding

(Any 4 x 1) = 4 marks

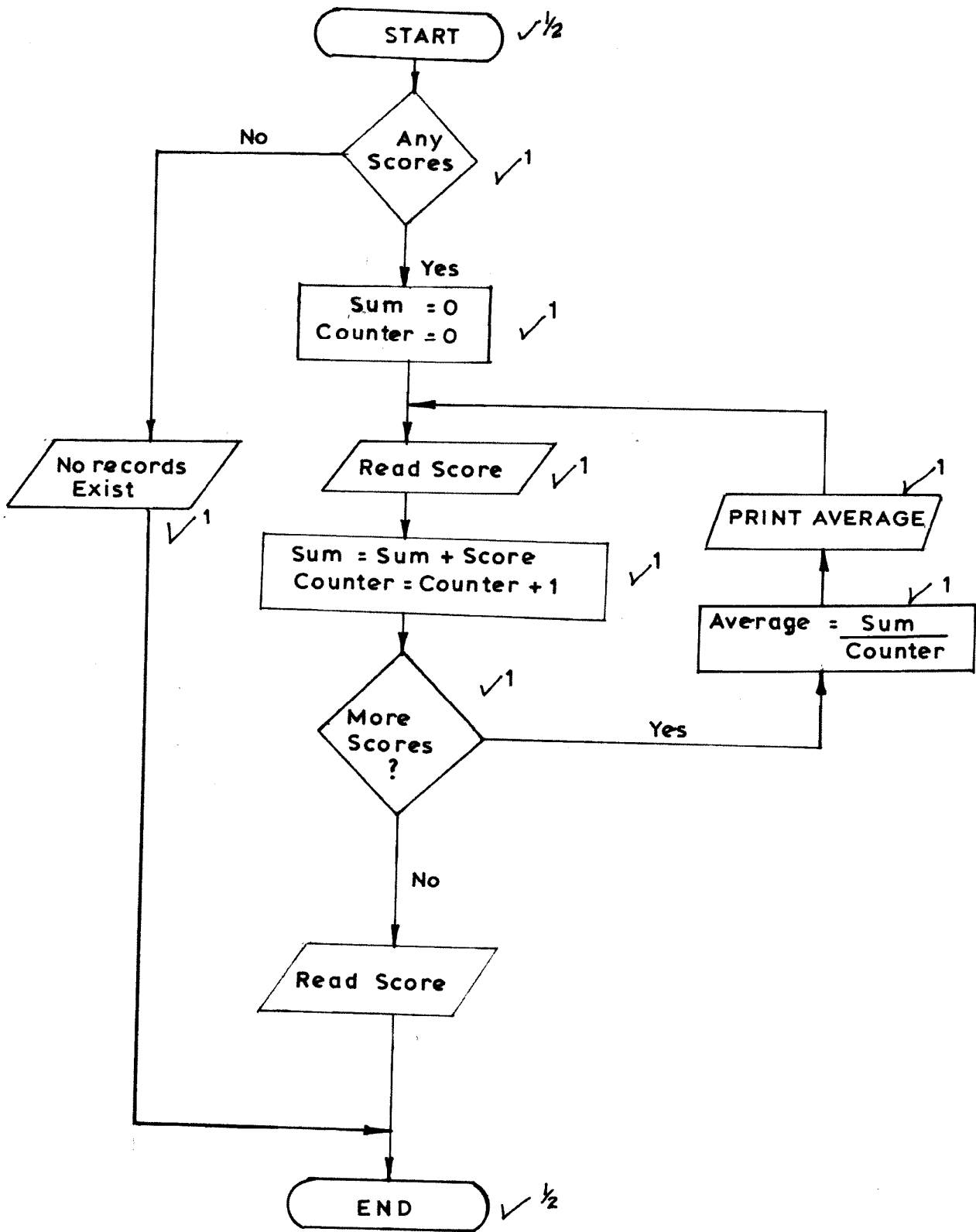
(c) Program flowchart



Logic flow ✓ 1

Total = 9 marks

Accept the following alternative flow chart



17. (a) (i) C is 110011 $\sqrt{1}$

CAB is 110011 110001110010 $\sqrt{1}$

(2 marks)

(ii)

Integer	Part
2	11
2	5 R1
2	2 R1
2	1 R0
	0 R1

Number 1011 $\sqrt{1}$

Decimal part

$$\begin{array}{l} .125 \times 2 = 0.250 \\ .250 \times 2 = 0.5 \\ .5 \times 2 = 1.0 \end{array}$$

Number is 0.001 $\sqrt{1}$

$$11.125_{10} = 1011.001_2 \quad \sqrt{1}$$

(3 marks)

(iii) Arithmetic operations

$$\begin{array}{r} 111.01 \\ + 1011.111 \\ \hline 10011.001 \\ - 101.011 \\ \hline 1101.110 \end{array}$$

$\sqrt{1}$

$\sqrt{1}$

$$(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) + (1 \times 2^{-1}) + (1 \times 2^{-2})$$

$$= 13 \frac{3}{4} \quad \sqrt{1}$$

(3 marks)

(b) **Importance of tab stops and section break**

(i) Tab stop: when tab stops are set, they allow aligning of text into columns;
(2 marks)

(ii) Section breaks: Allows splitting of a document into different sections so that different formatting styles can be applied to the different sections.
(2 marks)

(c) **Documents used during mail merge**

- Main document - primary/secondary/data source
 - The address list - the intended recipients of the document.
 - The merged document - final document ready for printing or sending.
- (3 marks)

18. (a) **Functions of network operating systems**

- Provide access to network resources;
 - Supporting network services like protocols;
 - Support communication;
 - Respond to requests from applications;
- (Any 3 x 1) = 3 marks

(b) **Ways in which an operating system provides data security**

- Access control: Deals with the problem of verifying /authenticating the identity of a user before permitting access to the request resource (e.g. use of passwords, user account);
 - Encryption - Transforming data into an unreadable format so that they are safely transmitted;
 - Firewalls - Filters out unwanted data and programs/criminals/hackers/malicious persons;
 - Log files - A means by which transactions in a computer system can be recorded thereby deterring potential infiltrators;
 - Alerts - Alerting a user when he/she is about to delete a file/folder.
- (Any 3 x 2) = 6 marks

(c) **Preference of observation during data collection**

- When the subjects that are being observed need not be made aware of the fact;
 - When there is need to directly see what subjects do rather than rely on what they tell you;
 - When there is need to collect data without interfering with the working of the subjects;
 - When nature of data can only be collected via observation e.g. traffic flow;
 - When collecting data in situation that subjects may be unwilling to give information.
- (Any 3 x 2) = 6 marks

19. (a) (i) **Ways of acquiring images in DTP:**

- Scanning;
- Picture capture via camera;
- downloading;
- getting from secondary storage.

(Any 2 x $\frac{1}{2}$) = 1 mark

(ii) **Layout guides**

- **Ruler guides:** a ruler on the edges of the page that guides a user to position objects and resize them;
- **Margin guides:** used to define page margins so that the user will be prevented from placing objects in non-printable areas of the page;
- **Column guides:** Vertical lines used to divide a page into two or more columns;
- **Row guides:** Lines used to divide a publication page into two or more section to help structure the layout;
- **Snap points:** Positions on the screen where the object is stuck on.

(Any 2 x 2) = 4 marks

(b) **Ways of ensuring accuracy of data during data processing**

- Data is stored in secondary storage in such a way that access to it is controlled.
- Encrypting of data before it is transmitted to minimize chances of it being compromised during transmission.
- Use of validation methods to ensure that data is correct at the point of input.
- Use of direct data capture methods which eliminates human errors.
- Use of verification methods.

(Any 3 x 2) = 6 marks

(c) (i) **Output device:** A plotter because it prints large size drawings to high precision.
(2 marks)

(ii) **A CAD software** because it facilitates in the design of engineering drawings.
(2 marks)

20. (a) **Ways in which internet makes reporting of corruption easier.**

- **Interactiveness:** the internet based technology enables real-time dialogue hence instantaneous reporting of cases;
- **Outreach:** the technology allows the coverage of wide areas/can be reported from anywhere;
- **Social mobilisation:** It is easy to use technology to create a network with people or organisations with similar concerns;
- **Anonymity:** With use of the technology, it has become easy to report corruption cases without being known;
- **Security:** The message sent reaches the destination with less risk of being intruded.

(Any 2 x 2) = 4 marks

(b) **Circumstances when wireless is preferred**

- When the targetted recipients are many and diverse e.g. different platforms, devices, geographical locations.
- When the sender or receiver is mobile and it is practical to use wired media.
- When there is no space or it is inconvenient to lay cables e.g in a congested town.
- When the distance of travel is very big e.g extraterrestrial communication.

(Any 2 x 2) = 4 marks

(c) (i) $(C2 - B2)/B2$

(2 marks)

(ii) If $(D2 < 0, \text{"More remedial"}, \text{If } (D2 = 0, \text{"Optional"}, \text{"Exempted"}))$
remedials

OR

If $(D2 > 0, \text{"Exempted"}, \text{"Optional remedials"})$

Use of the IF function $\sqrt{1}$

First selection & output $\sqrt{1}$

Second selection & output $\sqrt{1}$

Last selection & output $\sqrt{1}$

(4 marks)

(iii) $= \text{Max } (D2:D7)$

(1 mark)