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 interpeter**
   - **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 lightening;
   - 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

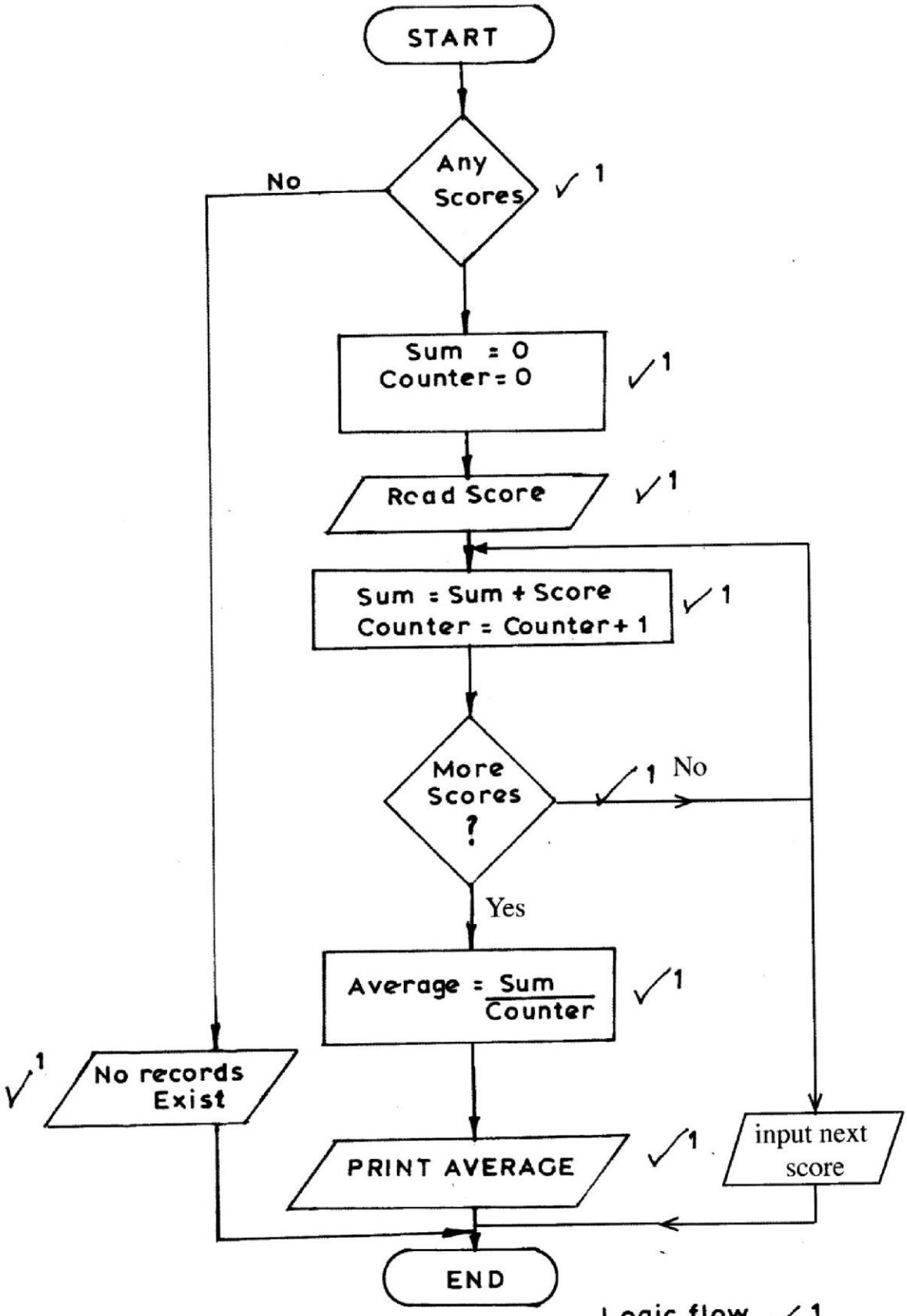
16. (a) **Web programming languages**
- **HTML** - Hyptertext Mark-up Language
- Java script
- **VBScript** - Visual Basic script
- **XML** - Extensible Markup Language
- **PHP** - Hypertext Preprocessor
- **SQL** - Structured Query Language
- Dream weaver
- Front page

(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

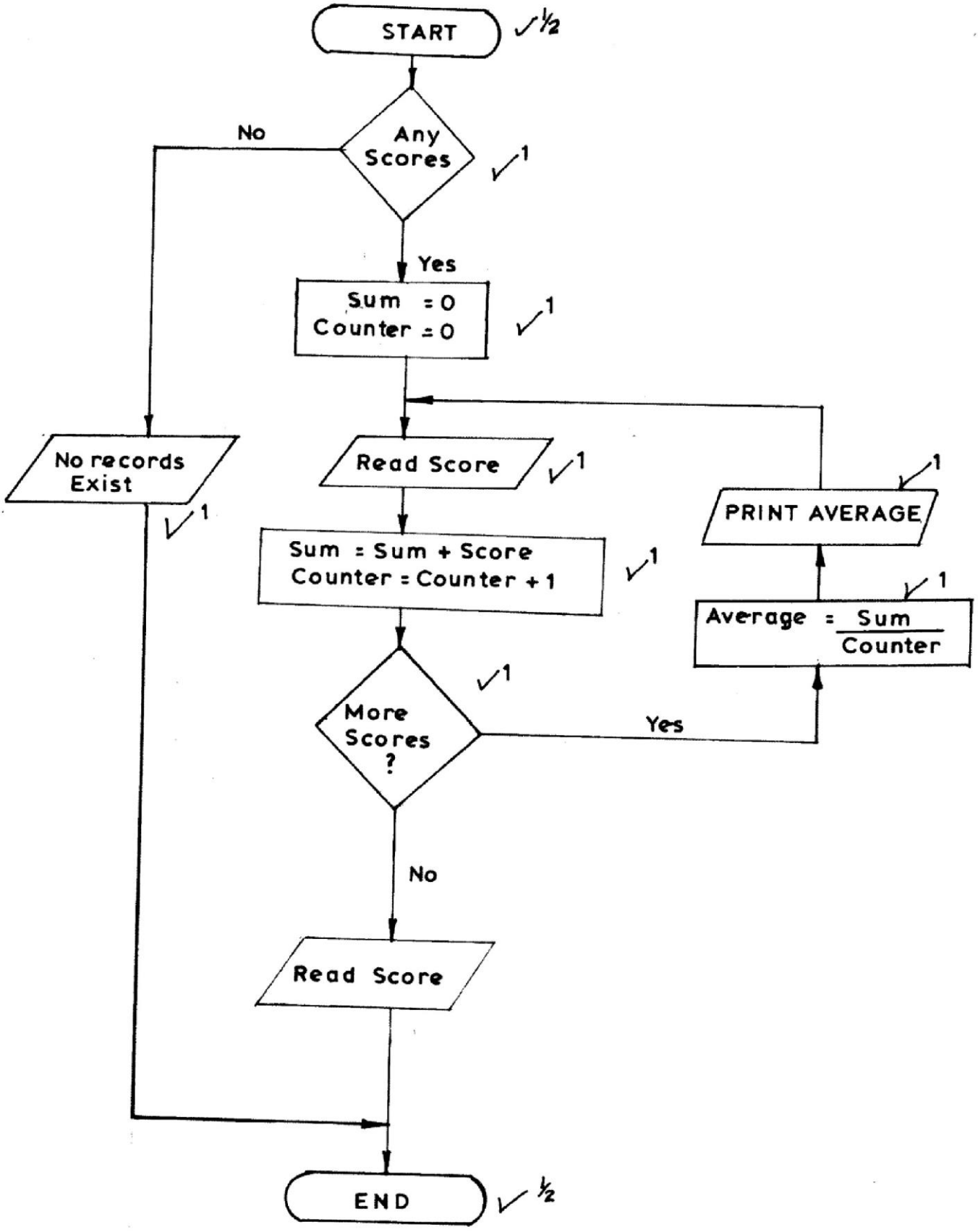
(c) Program flowchart



Logic flow ✓1

Total = 9 marks

Accept the following alternative flow chart



17. (a) (i) C is 110011 √1

CAB is 110011 110001110010 √1

(2 marks)

(ii)

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

Number 1011 √1

Decimal part

.125 x 2 = 0.250
.250 x 2 = 0.5
.5 x 2 = 1.0

Number is 0.001 √1

$11.125_{10} = 1011.001_2$ √1

(3 marks)

(iii) Arithmetic operations

$$\begin{array}{r} 111.01 \\ +\ 1011.111 \\ \hline 10011.001 \end{array}$$ √1

$$\begin{array}{r} 10011.001 \\ -\ 101.011 \\ \hline 1101.110 \end{array}$$ √1

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

$= 13\frac{3}{4}$ √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/malicoius persons;
- Log files - A means by which transactions in a computer system can be recorded thereby detering 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 in 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 extraterestial communication.

(Any 2 x 2) = 4 marks

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

(2 marks)

(ii) If (D2 < 0, "More remedial", If (D2 = 0, "Optional", "Exempted"))

remedials

OR

If (D2>0,"Exempted""Optional remedials")

Use of the IF function	√1
First selection & output	√1
Second selection & output	√1
Last selection & output	√1

(4 marks)

(iii) = Max (D2:D7) (1 mark)

4.23.2 Computer Studies Paper 2 (451/2)

TASK			MARKS
1. (a)	(i)	Folder creation @ $\frac{1}{2}$ Folder naming @ $\frac{1}{2}$ (last three digits) (of index no.)	1
	(ii)	**Heading** • Correct text @ $\frac{1}{2}$ (spelling, caps & completeness) • Font face (bigger) @ $\frac{1}{2}$ (relatively compared with the rest) • Alignment = centre @ $\frac{1}{2}$ (relatively centred)	1.5
		Graphic • Insertion of the shape/object/free form object @ 1 • Text inside the drawing @ 1 (caps, spelling, completeness) • Font face (centred) @ $\frac{1}{2}$ • Word wrap on surrounding text @ 1 • Upper left position of the drawing on the page @ 1	4.5
		Sub-headings • Five subheadings and table heading @ $\frac{1}{2}$ = 3 (completeness, spelling, caps) • Bold font face each 3 @ $\frac{1}{2}$ = 1.5 • Double underline @ $\frac{1}{2}$ • Character spacing @ 1 • Either spacing (tracking, space bar, scaling)	6
		Six paragraphs of text • Each paragraph text @ $\frac{1}{2}$ = 3 (completeness, spelling, paragraphing) • Indentation @ 1 paragraph 4 and paragraph 5 • Full justification @ $\frac{1}{2}$ (any paragraph that is for 2 lines) • Drop cap @ 1 for 2 lines • Dropped 3 lines @ $\frac{1}{2}$	5.5

TASK			MARKS
	(ii)	**Table** • Table dimensions 6 x 5 @ 1 • Correct records (six rows of text) each @ $\frac{1}{2}$ = 3 (completeness, spelling, case centred) • Column heading alignment @ 1 (centred) • Text direction - All the rows 1 @ 1 - Athletics @ $\frac{1}{2}$ • Cleared borders in cell 1 row 1 @ 1 • Four-merged cells @ 4 x $\frac{1}{2}$ = 2 • Two double line borders @ 1 = 2 • Alignment of text Row heading and cell values centres @ 1	12.5
	(iii)	Saving the document in the folder and as it is Sportsfile @ 1	1
(b)		**Footer** If it is a footer • Invoking footer feature @ $\frac{1}{2}$ • Correct text @ $\frac{1}{2}$ (completeness, spelling, title case) • Applying italics @ $\frac{1}{2}$ Centering @ $\frac{1}{2}$	2
(c)		**Section Break** • Insertion of a break @ $\frac{1}{2}$ (any form of a break) • Section break (next page) @ $\frac{1}{2}$	1
(d)	(i)	**Chart** • Inserting the bar-chart feature @ 1 • Six rows of data @ $\frac{1}{2}$ each = 3 • Chart position an new section @ 1	5

TASK			MARKS
	(ii)	Chart background = Grey @ 1	4
	(iii)	**Chart captioning** Invoking the caption feature @ 1 whether title or caption Correct text entered @ 1 (title case, completeness, spelling)	
	(iv)	Page orientation set to landscape @ 1	
(e)		Applying 3 pt line page border to the page containing the chart • 3-pt line weight @ 1 (other pages may be included) • border on new section only @ 1 only to the page required (pg 2)	2
(f)		**Page numbering** • Numbering @ 1 (any format) • Location at the header @ 1 top right corner)	2
(g)		**Printing** • Printing @ 1 • Printing on both sides @ 1 (back to back)	2
TOTAL			**50**

TASK			MARKS
2. (a)	(i)	Database created named Talents	
	(ii)	Tables Table 1 creation (PlayersTable) @ 1 Name of fields 5 fields @ $\frac{1}{2}$ each = 2.5 5 fields correct data type each @ $\frac{1}{2}$ = 2.5 Data entry @ 1 per column = 5	21
		Table 2 Table creation (SportsTable) @ 1 2 fields inserted and data type @ 1 = 2 Data entry @ 1.5	
		Table 3 Table creation (TeamsTable) @ 1 3 fields and data type @ 1 = 3 Data entry @ 1.5 Data entry (mark records for Tables)	
	(iii)	Primary keys PlayerId @ $\frac{1}{2}$ SportId @ $\frac{1}{2}$ TeamsId @ $\frac{1}{2}$	1.5
(b)		Relationship Table 1 - Table 2 @ 1 PrayersTable - SportsTable Table 1 - Table 3 @ 1 PrayersTable - TeamsTable	2
(c)		Adding new field • Modification of correct table @ 1 • Data entry @ 1 • Adding a field year of birth @ $\frac{1}{2}$ • Data type @ $\frac{1}{2}$	3
(d)		Form Form creation and saving @ $\frac{1}{2}$ Six correct fields and labels each @ $\frac{1}{2}$ = 3 (Fields must be a bounded) Alignment of labels @ $\frac{1}{2}$ first column $\frac{1}{2}$ second column Alignment of data fields @ $\frac{1}{2}$ Title insertion (centred) @ 1	6.5

TASK			MARKS
(e)	(i)	**Query 1** Creation and saving @ $\frac{1}{2}$ (EagleAgeQuery) 4 correct fields @ $\frac{1}{2}$ = 2 Criteria Team Name = "Eagle" (correct field) @ $\frac{1}{2}$ Calculated field expression @ 2 Age: 2015 - (YearOfBirth) Age: Year (Date) - YOB	5.5
	(ii)	**Query 2** Creation and saving @ $\frac{1}{2}$ All fields inserted @ 1 Criteria FirstName = like ('M*') @ 1 Criteria TeamId = "Z001" @ $\frac{1}{2}$	3
(f)		**Report** Creation and naming (RegReport) @ $\frac{1}{2}$ Total expression @ 1 Grouping by team @ 1 Report title @ 1 (Appropriate title) (Registration fee)	3.5
(g)		**Printing** 3 tables each @ $\frac{1}{2}$ = 1.5 2 queries each @ $\frac{1}{2}$ = 1 RegReport @ $\frac{1}{2}$ = 0.5	3
TOTAL			**50**