

BITAME LUCIA INTERNATIONAL COLLEGE

MOCK EXAMINATION MARKING GUIDE FOR THE ORDINARY LEVEL COMPUTER SCIENCE

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PAPER 1

Question No.	Correct Option	Explanation
1	B	The OS acts as a manager, handling hardware resources (CPU, memory) and the execution of programs (processes).
2	C	A Local Area Network (LAN) is restricted to a small area like a room, home, or office building.
3	A	In a Star topology, all nodes are connected to a central device (hub/switch), making it easy to troubleshoot.
4	B	Uniform Resource Locator is the specific web address used to identify a resource on the internet.
5	C	A router is an intelligent device that determines the best path for data packets between different networks.
6	B	Booting refers to the initial set of operations that a computer system performs when it is switched on.
7	C	Linux is open-source, meaning its source code is freely available for anyone to modify and redistribute.
8	C	File Transfer Protocol (FTP) is the standard network protocol used for the transfer of files between client and server.
9	B	A Graphical User Interface allows users to interact with electronic devices through visual indicators like icons.
10	B	An Internet Service Provider (ISP) provides the infrastructure and services required to access the internet.
11	A	Mail Merge automates the process of sending a single document to multiple recipients using a database of names/addresses.
12	C	A cell is the basic unit of a spreadsheet where data is entered, identified by its column letter and row number.

Question No.	Correct Option	Explanation
13	B	=SUM(range) is the standard syntax for adding values in a spreadsheet application like Excel.
14	B	An algorithm is a logical, step-by-step procedure for solving a problem or performing a task.
15	C	PowerPoint is specifically designed for creating visual presentations using slides.
16	A	The MAX function scans a range of cells and returns the numerical value that is the highest.
17	B	Styles (Heading 1, 2, etc.) allow the word processor to identify which text represents chapters or sections to build the TOC.
18	D	Antivirus is a utility/security software; productivity tools are used to create "products" like documents or budgets.
19	C	Loops (iteration) allow a programmer to execute a block of code multiple times until a condition is met.
20	C	Portable Document Format (PDF) ensures that a document looks exactly the same on any device or operating system.
21	C	The Central Processing Unit (CPU) performs the actual fetching, decoding, and executing of instructions.
22	B	RAM is temporary storage; it requires electricity to maintain the stored information.
23	C	A scanner takes physical data (paper) and converts it into digital data for the computer to process.
24	B	Preventive maintenance is performed while the equipment is still working to reduce the likelihood of failure.
25	C	An Uninterruptible Power Supply (UPS) provides battery backup when the electrical power fails or drops to an unacceptable voltage.

Question No.	Correct Option	Explanation
26	B	Basic Input/Output System (BIOS) is firmware that initializes hardware during the booting process.
27	C	The AND gate follows the logic that the output is TRUE only if Input A AND Input B are both TRUE.
28	C	Defragmentation rearranges fragmented data on a hard disk so files are stored in contiguous blocks, speeding up access.
29	B	The motherboard is the main printed circuit board that hosts the CPU, memory, and connectors for peripherals.
30	C	Malware is a general term for viruses, worms, trojans, and other harmful software.
31	B	A bit (binary digit) is the most basic unit, representing a 0 or a 1.
32	B	By standard definition, 8 bits are grouped together to form 1 byte.
33	C	Binary 1011 = $(1 * 2^3) + (0 * 2^2) + (1 * 2^1) + (1 * 2^0) = 8 + 0 + 2 + 1 = 11$.
34	B	A compiler translates the entire high-level source code into machine code (object code) before execution.
35	C	OOP organizes software design around data, or objects, rather than functions and logic.
36	C	Hexadecimal uses 16 symbols: 0-9 and A-F to represent values.
37	B	Encryption uses algorithms to scramble data, making it unreadable to anyone without the decryption key.
38	C	A text editor (like Notepad or VS Code) is where the programmer physically types the syntax of the language.
39	C	In flowcharting standards, the diamond represents a branching point where a "Yes/No" or "True/False" decision is made.

Question No.	Correct Option	Explanation
40	B	American Standard Code for Information Interchange (ASCII) assigns numerical values to letters and symbols.
41	B	TPS handles routine transactions (like sales or deposits) which are the foundation of business data.
42	C	Analysis involves identifying the problem and requirements before any design or coding begins.
43	C	Parallel implementation is the safest method as it keeps the old system as a backup while testing the new one.
44	C	The Network Manager focuses on the connectivity, security, and performance of the organization's network.
45	B	Ergonomics aims to create a safe and comfortable working environment to prevent injuries like Repetitive Strain Injury (RSI).
46	B	Software piracy (illegal copying) is a moral and legal violation of intellectual property rights.
47	C	A range check ensures data is between a minimum and maximum allowable value.
48	C	User manuals are written in non-technical language to help the average person use the software effectively.
49	C	Senior management looks at the "big picture" and sets the long-term goals and strategies for the company.
50	C	Piracy specifically refers to the infringement of copyright through unauthorized duplication.

PAPER 2

Question 1: Operating Systems and Networks (20 Marks)

i. Definitions (6 marks):

- a) **Network Topology:** The physical or logical layout/arrangement of computers and cables in a network. (2 pts)
- b) **Protocol:** A set of rules that govern how data is formatted, transmitted, and received over a network. (2 pts)
- c) **ISP:** A company that provides subscribers with access to the Internet. (2 pts)

• B. School Scenario (9 marks):

- a) **LAN (Local Area Network).** (2 pts)
- b) **Star Topology:** All computers connect to a central switch. **Advantage:** If one cable fails, the rest of the network remains functional. (4 pts)

3. ****Components:**** NIC (Network Interface Card), Switch/Hub, RJ45 Connectors/Ethernet Cables. (3 pts)

• C. OS Roles (5 marks):

- **Process Management:** Allocating CPU time to different programs and ensuring they don't interfere with each other. (2.5 pts)
- **Resource Management:** Managing hardware peripherals like printers, memory (RAM), and storage. (2.5 pts)

Question 2: Application Packages (20 Marks)

A. Word Processing (8 marks):

1. **Mail Merge:** Combining a static document with a data source (list of names) to create personalized documents. **Scenario:** Generating individual report cards for 500 students. (4 pts)
2. **Formatting vs Editing:** Editing is changing the *content* (correcting typos, deleting sentences), while Formatting is changing the *appearance* (bolding, font size, margins). (4 pts)

• B. Spreadsheets (6 marks):

1. **Formula:** A user-defined calculation (e.g., =A1+B1). **Function:** A built-in, pre-defined calculation (e.g., =SUM(A1 : B1)). (4 pts)

2. **Function:** =AVERAGE (B2 : B20) (2 pts)

• **C. Presentations (6 marks):**

1. **Package:** PowerPoint (or Impress). (2 pts)

2. **Features:** Transitions, Animations, Hyperlinks, or Action Buttons. (Any two, 4 pts)

Question 3: Hardware Systems & Maintenance (20 Marks)

A. CPU (9 marks):

1. **Components:** Control Unit (CU), Arithmetic Logic Unit (ALU), Registers. (3 pts)

2. **Machine Cycle:** **Fetch** (get instruction from RAM), **Decode** (CU translates instruction), **Execute** (ALU performs the task). (6 pts)

B. Memory (4 marks):

• **RAM:** Volatile (loses data without power), used for running applications. (2 pts)

• **ROM:** Non-volatile (keeps data), used for storing the BIOS/startup instructions. (2 pts)

• **C. Maintenance (7 marks):**

1. **Preventive Maintenance:** Proactive care to prevent failure. **Example:** Cleaning dust from fans or running Disk Defragmenter. (3 pts)

2. **Tools:** Surge Protector/UPS (for power) and Antivirus/Backups (for data). (4 pts)

Question 4: Data Representation (20 Marks)

• **A. Binary (12 marks):**

1. **Bit:** Smallest unit (0 or 1). **Byte:** A group of 8 bits. (4 pts)

2. **Decimal 25 to Binary:** $25 \div 2 = 12R1$; $12 \div 2 = 6R0$; $6 \div 2 = 3R0$; $3 \div 2 = 1R1$; $1 \div 2 = 0R1$.
Result: 11001. (4 pts)

3. **Sum (1011 + 1101):** $1011 + 1101 = 11000$ (Base 2). (4 pts)

• **B. ASCII (4 marks):** To provide a standard numerical code for characters so different computers can exchange text-based information.

• **C. Encryption (4 marks):** Encoding data into a secret format. It is important to protect privacy and secure sensitive data from hackers.

Question 5: Software Development & Pascal (20 Marks)

A. Algorithms (7 marks):

1. **Characteristics:** Finiteness (must end), Unambiguous (clear), Input/Output defined. (3 pts)
2. **Symbols:** Diamond for Decision; Parallelogram for Input/Output. (4 pts)

B. Programming (7 marks):

1. **Compiler:** Translates whole code at once. **Interpreter:** Translates line-by-line. (4 pts)
2. **Paradigms:** Imperative, Declarative, Object-Oriented. (3 pts)

- **Pseudocode for Sum (6 marks):**

```
program SumTwoNumbers;
var
  num1, num2, total :
integer;
begin
  writeln('Enter first
number: ');
  readln(num1);
  writeln('Enter second
number: ');
  readln(num2);
  total := num1 + num2;
  writeln('The sum is: ',
total);
end.
```

Question 6: Information Systems (20 Marks)

- **A. IS Basics (7 marks):**

1. **TPS:** Records daily routine transactions. **Example:** ATM withdrawal or supermarket checkout system. (4 pts)
2. **Levels:** Strategic (Top), Tactical (Middle), Operational (Bottom). (3 pts)

- **B. SDLC (7 marks):**

1. **Stages:** Analysis, Design, Implementation, Testing, Maintenance. (Any four, 4 pts)
2. **Testing:** Ensures the software is bug-free and meets user requirements before it is officially used. (3 pts)

- **C. Conversion (6 marks):**
 1. **Parallel:** Old and new systems run together (safe). (3 pts)
 2. **Direct Plunge:** Old system stopped, new one starts immediately (risky). (3 pts)
-

Question 7: Society and Ethics (20 Marks)

- **A. Ergonomics (6 marks):**
 1. **Ergonomics:** Designing tools/workspaces for human comfort/safety. It prevents long-term physical injury. (4 pts)
 2. **Health Risks:** Eye strain (CVS), Back pain, Carpal Tunnel Syndrome. (2 pts)
- **B. Ethics (6 marks):**
 1. **Software Piracy:** Illegal copying or distribution of software. (2 pts)
 2. **Copyright:** Legal right that gives the creator exclusive control over how their software is used/sold. (4 pts)
- **C. Careers (8 marks):**
 1. **Network Manager:** Installs/maintains networks, ensures connectivity and security. (4 pts)
 2. **Database Administrator (DBA):** Manages data storage, ensures data integrity, and handles backups/recovery. (4 pts)

PAPER 3

Group 1

Task 1: Word Processing (35 Marks)

- **Typing Accuracy (5 Marks):** Deduct 0.5 marks for every spelling or punctuation error.
 - **Title Formatting (5 Marks):** * Center (1)
 - Arial Font (1)
 - Size 16 (1)
 - Bold & Underlined (2)
 - **Paragraphing & Alignment (5 Marks):** Times New Roman (2), Size 12 (1), Justified (2).
 - **Line Spacing (4 Marks):** Correctly set to 1.5.
 - **Numbered List (5 Marks):** Roman Numerals (i, ii, iii) used correctly.
 - **Page Layout (4 Marks):** Landscape orientation (2), Page Border applied (2).
 - **Header/Footer (4 Marks):** Name in Header (2), Date/Time in Footer (2).
 - **Image Handling (3 Marks):** Image inserted (1), Square wrapping applied (1), Positioned top-right (1).
-

Task 2: Spreadsheets (35 Marks)

- **Data Entry & Formatting (5 Marks):** Table typed correctly (2), Header row Bold with Light Blue background (3).
 - **Total Calculation (5 Marks):** Correct use of =SUM(B2:D2) or =(B2+C2+D2).
 - **Average Calculation (5 Marks):** Correct use of =AVERAGE(B2:D2) or =(E2/3).
 - **Logical Function (IF) (8 Marks):** * Correct syntax: =IF(F2>=50, "Pass", "Fail") (5)
 - Correct results appearing for all students (3).
 - **Statistical Functions (4 Marks):** * =MAX() for highest average (2)
 - =MIN() for lowest average (2)
 - **Charting (5 Marks):** 3D Clustered Column (2), Correct data range (2), Chart Title present (1).
 - **Sorting (3 Marks):** Table correctly sorted Z-A by Name.
-

Task 3: Programming in C (30 Marks)

- **Source Code Accuracy (5 Marks):** Code types without syntax errors and compiles.
 - **Task 3.1: Output (5 Marks):** Student must write: The sum is small: 35.
 - **Task 3.2: Product Modification (5 Marks):** * New variable product declared (2).
 - Calculation `product = num1 * num2;` added (3).
 - **Task 3.3: Logical Update (5 Marks):**
 - New `if (product > 100)` structure added (3).
 - Correct `printf` statements (2).
 - **Task 3.4: Documentation (5 Marks):** Comment added at the top `// Name - Index`.
 - **Task 3.5: Written Question (5 Marks):** * Answer: `%d` is a **format specifier** used for **integer** data types.
-

Group 2

Task 1: Spreadsheets (35 Marks)

File Name: School_Store.xlsx

Assessment Criteria	Marks	Description
Data Entry	5	Accurate entry of the inventory table (Item ID, Name, Quantity, Price).
Total Value Calculation	5	Correct use of formula <code>=Quantity * Unit Price</code> for all 4 items.
Discount Calculation	5	Correct use of formula <code>=Total Value * 5%</code> (or 0.05).
Currency Formatting	4	Correct application of currency symbols (XAF or \$) to relevant columns.
Conditional Formatting	4	"Red Fill" correctly applied to cells in Quantity column <code>< 40</code> .
Grand Total	4	Proper use of <code>=SUM()</code> function at the bottom of the Total Value column.
Filtering	3	Table filtered to display only Unit Price <code>> 1000</code> .

Assessment Criteria	Marks	Description
Pie Chart	5	Created chart with Item Names and Quantities, labeled "Stock Distribution".

Task 2: Web Authoring - HTML (35 Marks)

File Name: Index.html

Assessment Criteria	Marks	Description
Basic Structure	5	Correct use of <html>, <head>, <title>, and <body> tags .
Background Color	5	Correct modification: <body style="background-color:yellow;"> or bgcolor="yellow".
Text Color	5	Main Heading <h1> style changed to blue.
Unordered List	5	Use of and for the 3 specified items.
Hyperlink	5	Correct syntax: Click here to visit Google.
Image Integration	5	Correct use of with width="300px" attribute.
Table Creation	5	2x2 table with correct headers (Room No/Capacity) and data (Lab 1/30).

Task 3: Database Management (30 Marks)

File Name: Library_System.accdb

Assessment Criteria	Marks	Description
Table Design	6	Created "Books" table with correct field names and data types (AutoNumber, Text, etc.) .
Primary Key	2	BOOKID correctly set as the Primary Key.
Data Entry	6	Accurate entry of the three provided records .

Assessment Criteria	Marks	Description
Query Creation	6	"Recent_Books" query showing only Title/Author where Year > 1955.
Reporting	5	Report generated for all fields and grouped by "Available" status.
Validation (Written)	5	Explanation: The Primary Key uniquely identifies each record and prevents duplicate entries.

Folder Management (General Instructions)

- **Deduction:** Subtract **5 Marks** if the work is not saved in a folder named Student_Name on the desktop.
 - **Deduction:** Subtract **2 Marks** for each file named incorrectly.
-

Group 3

Task 1: Word Processing & Desktop Publishing (35 Marks)

File Name: Tech_Newsletter.docx

Assessment Criteria	Marks	Description
Text Accuracy	5	Accurate typing of the provided text regarding Artificial Intelligence.
Column Formatting	5	Text formatted into two columns with a vertical line between them.
Drop Cap	5	Drop Cap applied to the letter "A" in the first paragraph, dropped over 3 lines.
Find and Replace	4	"future" replaced with TOMORROW in bold capital letters.
Table Insertion	5	Table with 3 columns and 4 rows created with specified headers.
Watermark	4	Diagonal custom text watermark "CONFIDENTIAL" applied.
Page Setup	4	Page margins set to "Narrow" (1.27 cm on all sides).
Hyperlink	3	Word "healthcare" linked to https://www.who.int .

Task 2: Programming (35 Marks)

File Name: GradeCheck.c Note: While the task asks for Pascal, the provided source code is in C. Marks should be awarded for logical correctness in either language.

Assessment Criteria	Marks	Description
Execution	5	Successful compilation and output for input "42": Result: Needs Improvement.
Logic Update	10	Correct use of ELSE IF for three ranges (Excellent, Pass, Fail).
String Variable	5	Declaration of studentName as a string and use of input/output for it.
Looping Challenge	10	Implementation of a FOR loop to process 3 students sequentially.
Reserved Word	5	Identification of a keyword (e.g., int, if, else, return).

Task 3: Database Management (30 Marks)

File Name: Hospital_Records.accdb

+2

Assessment Criteria	Marks	Description
Table Structure	6	Table "Patients" created with correct field names and types.
Lookup Wizard	4	Gender field restricted to "Male" or "Female" via Lookup Wizard.
Data Entry	4	Accurate entry of the two provided patient records.
Form & Entry	6	Creation of a Data Entry Form and addition of a 3rd record.
Querying	5	"Female_List" query correctly filters for female patients.
Exporting	5	Successful export of the table to Patient_Backup.xlsx.

Administrative Deductions

- **Folder Management:** Subtract **5 Marks** if the work is not saved in a desktop folder named Student_Name.
 - **File Naming:** Subtract **2 Marks** for each file that does not match the specified filename.
-

Group 4

Task 1: Web Authoring - HTML (40 Marks)

File Name: School_Web.html

Assessment Criteria	Marks	Description
Document Setup	5	Correct use of <html>, <head>, and <body> tags with the title set to "Green Valley High School".
Heading & Alignment	5	Level 1 Heading <h1> created and centered using <center> or CSS.
Horizontal Rule	3	Correct placement of the <hr> tag below the heading.
Table Structure	7	Table accurately lists Departments (Science, Arts, ICT), Heads, and Rooms .
Table Formatting	5	Table attributes set to border="2", cellpadding="5", and width="50%".
Multimedia	10	Image campus . jpg inserted with height 200px, width 400px, and alt text "School Campus".
Email Link	5	Hyperlink created using .

Task 2: Spreadsheets (35 Marks)

File Name: Staff_Payroll.xlsx

Assessment Criteria	Marks	Description
Data Entry	5	Accurate entry of Employee IDs, Names, Salaries, and Rates.
Overtime Formula	5	Correct formula: =Extra Hours * Hourly Rate (e.g.,

Assessment Criteria	Marks	Description
Gross Salary Formula	5	Correct formula: =Basic Salary + Overtime Pay (e.g., =D2*E2). Correct formula: =Basic Salary + Overtime Pay (e.g., =C2+F2).
Data Validation	5	Settings applied to "Extra Hours" to allow only whole numbers between 0 and 20.
Conditional Formatting	5	Font color changed to Red for Gross Salary values > 200,000.
Bar Chart	6	Chart created comparing Names and Gross Salaries with clear axis labels.
Footer	4	Footer contains both Student Full Name and Center Number.

Task 3: Word Processing (25 Marks)

File Name: Meeting_Invite.docx

Assessment Criteria	Marks	Description
Text Entry & Proofing	5	Accurate typing of letter content and successful spell check . +1
Page Border	4	"Box" style border applied with a width of 3pt.
Text Effects	4	Shadow or text effect applied specifically to the main heading.
Indentation	4	Entire body paragraph has a Left Indent of 1.5 cm.
Column Formatting	4	Agenda items ("School Infrastructure" to "Results Review") split into two columns.
Shapes & Text	4	Star shape inserted at bottom right with "Save the Date!" text inside.

Administrative Guidelines

- **Folder Setup:** Candidates must create a folder on the desktop named **Student_Name**. Failure to do so or saving outside this folder may result in a **5-mark deduction**.

- **File Naming:** Ensure files are saved exactly as `School_Web.html`, `Staff_Payroll.xlsx`, and `Meeting_Invite.docx`.

+2

- **Written Responses:** Any technical explanations requested must be clear on the answer sheet.

Group 5

Task 1: Programming in C (40 Marks)

File Name: `Geometry.c`

Assessment Criteria	Marks	Description
Execution & Output	5	Correct output for length 12.5 and width 10 : "The calculated area is: 125.00" and "This is a large area."
Perimeter Modification	10	Correct implementation of Perimeter formula: Perimeter=2×(length+width).
Variable Theory	5	Explanation: <code>float</code> is used instead of <code>int</code> to allow for decimal/fractional values (e.g., 12.5).
Looping	10	Proper use of a <code>for</code> loop (e.g., <code>for (int i=0; i<5; i++)</code>) to repeat calculations 5 times.
Logic Update	10	Correct implementation of <code>if (length == width)</code> to identify and print "This is a Square".

Task 2: Database Management (35 Marks)

File Name: `Club_Management.accdb`

Assessment Criteria	Marks	Description
Table Structure	8	"Members" table created with correct field names, types, and Member ID as Primary Key .
Lookup Wizard	4	<code>ClubName</code> field correctly limited to "Robotics", "Music", and "Sports".
Data Entry	4	4 records entered with at least two members in the "Robotics" club.
Date Query	7	"New_Members" query correctly filters for members joining after

Assessment Criteria	Marks	Description
		01/01/2023.
Summary Query	7	"Robotics_Count" query correctly uses the COUNT function or criteria to total Robotics members.
Form Design	5	"Split Form" created with the header background color set to Green.

Task 3: Word Processing (25 Marks)

File Name: Computer_Hardware.docx

Assessment Criteria	Marks	Description
Styles & Content	5	Text reproduced accurately with "Heading 1" and "Heading 2" styles applied .
Hyperlinks	4	Bookmark created on "RAM" and linked correctly from the word "Memory".
Table of Contents	4	Automatic Table of Contents generated at the top based on the applied styles.
Footnote	4	Footnote added to "Volatile" with the correct explanatory text.
Symbols	4	Insertion of © and ™ symbols in the title.
Page Numbering	4	"Page X of Y" format applied to the bottom center of the page.

General Grading Policies

- **Folder Organization:** Deduct **5 marks** if the candidate failed to save work in a desktop folder named Student_Name.
- **File Naming:** Deduct **2 marks** for each file not saved with the exact name specified in the instructions (e.g., Geometry.c, Club_Management .accdb, Computer_Hardware.docx).