

EDUZEDCO
451/2 COMPUTER STUDIES
Paper 2
Form 4 End Term Examination

Time: 2 ½ Hours

Name:

Adm No:

School:

Class:

Signature:

Date:

INSTRUCTIONS TO CANDIDATES

- (a) Write your name and index number in the spaces provided at the top of this page.
- (b) Write your school name, sign and write the date of the examination in the spaces provided above.
- (c) This paper consists of **Two** sections: **Section I** and **Section II**.
- (d) Answer all questions as instructed in each section.
- (e) Marks may be given for correct working, relevant points, and clear presentation.
- (f) Non-programmable silent electronic calculators may be used where necessary.
- (h) This paper consists of **4 printed pages**.
- (i) Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.
- (j) Candidates should answer the questions in English.

For Examiner's Use Only

SECTION I

1	2	3	4	5	6	7	8	9	Total

SECTION II

10	11	12	13	14	15	16	17	Total	Grand Total

SECTION I (50 Marks)

Answer **all** questions in this section in the spaces provided.

1. Answer the following questions on input devices.

(2 mks)

(a) Name an input device commonly used to capture digital images. (1 mark)

(b) State one advantage of using this device over a smartphone camera for image capture. (1 mark)

2. Answer the following questions on binary numbers.

(3 mks)

(a) Perform the binary addition: $1011\blacksquare + 1101\blacksquare$. Show your working. (2 marks)

(b) Convert your result in (a) to decimal. (1 mark)

3. Answer the following questions on operating systems.

(3 mks)

(a) Identify one function of an operating system. (1 mark)

(b) Explain the function you have identified. (1 mark)

(c) Give an example of an operating system that performs that function. (1 mark)

4. Answer the following questions on data processing.

(3 mks)

(a) List the stages of the data processing cycle in their correct order. (1 mark)

(b) Describe what happens during the processing stage. (2 marks)

5. Answer the following questions on word processing.

(3 mks)

(a) Name two formatting features available in word processing software. (2 marks)

(b) Describe the purpose of one of them. (1 mark)

6. The table below shows harvest records (in kg) for three crops over three months. | Month | Maize | Beans | Millet | | Jan | 200 | 150 | 80 | | Feb | 180 | 160 | 90 | | Mar | 210 | 140 | 85 | Assume cell F1 contains the price per kg in shillings (e.g., 50).

(3 mks)

(a) Define cell reference. (1 mark)

(b) Write a formula that uses both relative and absolute referencing to calculate the total cost of Maize harvest for the three months. (2 marks)

7. Answer the following questions on databases.

(2 mks)

(a) Name two database objects. (1 mark)

(b) State the use of one of them. (1 mark)

8. Answer the following questions on network topologies.

(3 mks)

(a) Name one network topology. (1 mark)

(b) Sketch the topology. (1 mark)

(c) State one advantage of that topology. (1 mark)

9. Answer the following questions on software categories.

(2 mks)

(a) Distinguish between system software and application software. (1 mark)

(b) Give an example of each. (1 mark)

451/2 COMPUTER STUDIES MARKING SCHEME

Form 4 Paper 2

SECTION I (50 marks)

1. Answer the following questions on input devices. (2 marks)

■ (a) Name an input device commonly used to capture digital images. Accept: Scanner or Digital camera. (1 mark) (1)

■ (b) State one advantage over smartphone camera. Accept: Higher resolution, better for documents, more control over settings, etc. (1 mark) (1)

Alt:

— Part (a): Digital camera, Webcam (if justified for image capture). Part (b): Produces better quality images, less distortion.

2. Answer the following questions on binary numbers. (3 marks)

■ (a) Binary addition working: $1011 + 1101 = 11000$ (with carry). M1: Correct addition method shown (carry 1s). A1: Final answer 11000_2 . (2 marks) (2)

■ (b) Convert 11000_2 to decimal: $1 \times 16 + 1 \times 8 + 0 \times 4 + 0 \times 2 + 0 \times 1 = 24_{10}$. (1 mark) (1)

Alt:

— Part (a): Alternative correct binary sum, e.g., $1011 + 1101 = 11000$. Part (b): 24.

3. Answer the following questions on operating systems. (3 marks)

■ (a) Identify one function of an OS. Accept: Process management, memory management, file management, device management, etc. (1 mark) (1)

■ (b) Explain the function. Must be a clear description. E.g., Process management: manages the execution of processes by allocating CPU time and resources. (1 mark) (1)

■ (c) Give an example of an OS that performs that function. Accept: Windows, Linux, macOS, Android, etc. (1 mark) (1)

Alt:

— Part (a): Security, user interface. Part (b): Memory management controls allocation of RAM. Part (c): Ubuntu.

4. Answer the following questions on data processing. (3 marks)

■ (a) List stages of data processing cycle in correct order: Input, Processing, Output, Storage. (1 mark for correct order, deduct if order wrong but all stages present). (1)

■ (b) Describe processing stage: Raw data is manipulated to produce meaningful information. Operations include calculation, sorting, summarizing, validation, etc. (2 marks: 1 for general description, 1 for example operation). (2)

Alt:

— Part (a): Input, Processing, Output (Storage may be omitted but accept as final stage). Part (b): Processing involves transforming data into information using arithmetic or logical operations.

5. Answer the following questions on word processing. (3 marks)

■ (a) Name two formatting features. Accept: Bold, Italic, Underline, Font size, Font color, etc. (1 mark each, any two). (2)

■ (b) Describe purpose of one. E.g., Bold makes text thicker for emphasis. (1 mark for correct description). (1)

Alt:

— Part (a): Alignment, Bullets. Part (b): Italic slants text for titles.

6. The table below shows harvest records (in kg) for three crops over three months. (3 marks)

Month | Maize | Beans | Millet | Jan | 200 | 150 | 80 | Feb | 180 | 160 | 90 | Mar | 210 | 140 | 85 | Assume cell F1 contains the price per kg in shillings (e.g., 50).

■ (a) Define cell reference: A cell reference is the address of a cell, e.g., B2. (1 mark for clear definition). (1)

■ (b) Write formula to calculate total cost of Maize harvest for three months using relative and absolute referencing. Correct formula: =SUM(B2:B4)*F1 or = (B2+B3+B4)*F1. Must include absolute reference for price cell (F1). (2 marks: 1 for correct range with relative reference, 1 for absolute reference to price). (2)

Alt:

— Part (b): =SUM(B2:B4)*F1 (mixed reference also acceptable). If missing absolute, deduct 1 mark. Also accept =SUM(B2:B\$4)*F1 if relative on price? No, must have absolute on price. So only correct ones.

7. Answer the following questions on databases. (2 marks)

■ (a) Name two database objects. Accept: Table, Query, Form, Report, Macro, Module. (1 mark for any two). (1)

■ (b) State use of one. E.g., Table stores data in rows and columns. Query retrieves specific data. Form provides data entry interface. (1 mark for correct use). (1)

Alt:

— Part (a): Table and Query. Part (b): Form is used to enter or edit data.

8. Answer the following questions on network topologies. (3 marks)

■ (a) Name one network topology. Accept: Bus, Star, Ring, Mesh, Tree. (1 mark). (1)

■ (b) Sketch the topology. Must show appropriate structure. E.g., Bus: single line with nodes attached. Star: central hub with spokes to nodes. (1 mark for recognizable sketch). (1)

■ (c) State one advantage. E.g., Bus: easy to install and cheap. Star: easy to add new nodes. Ring: less cable than star. (1 mark for valid advantage). (1)

Alt:

— Part (a): Tree topology. Part (b): Accept any clear hand-drawn representation. Part (c): Mesh provides redundancy.

9. Answer the following questions on software categories.

(2 marks)

■ (a) Distinguish between system and application software. System software manages hardware and provides platform; application software performs specific user tasks. (1 mark for valid distinction). (1)

■ (b) Give an example of each. System: Windows, Linux. Application: MS Word, Excel. (1 mark for both correct examples). (1)

Alt:

— Part (a): System software controls computer operations, while application software helps users do tasks. Part (b): System: macOS; Application: Photoshop.