THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

136/1 **COMPUTER SCIENCE 1**

(For Both School and Private Candidates)

Duration: 3 Hours **Year: 2025**

Instructions

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **all** questions from section A and **two (2)** questions from sections B.
3. Section A carries **seventy (70)** marks and section B **thirty (30)** marks.
4. All writing must be in **blue** or **black** ink, **except** drawings which must be in pencil.
5. Cellular phones and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (70 Marks)

Answer **all** questions in this section.

1. The Dar es Salaam Rapid Transit (DART) company wants to install a new smart system that the passenger can use coins and smart cards to get access. The planned system is expected to operate in discrete mode using two inputs either a passenger and coin or a passenger and smart card. Perform the following tasks required in designing the new DART system:
   (a) Create a truth table that represents the DART new smart system.
   (b) Use the truth table constructed in 1(a) to generate a simplified Boolean expression.
   (c) Draw the logic gate circuit for the simplified Boolean expression in 1 (b).

2. (a) Compare the following C++ programming terms and give one example for each.
      (i) Formal and actual function parameters.
      (ii) Pre-decrement and post-decrement operators.
   (b) Construct a C++ program that adds two real numbers entered by a user.

3. The Computer Research Institute (CRI) disposes its electronic waste (e-waste) on landfills without taking any precautions.
   (a) What are the two major environmental effects caused by the CRI actions?
   (b) Which safest disposal method can be used by the CRI?
   (c) Why CRI is advised to use proper electronic waste? Explain by giving four reasons.
   (d) Describe two health hazards that can be linked to poor e-waste management.

4. (a) Memo primary school plans to connect the computers to its three offices located in the same building.
   (i) Which type of network would you suggest to be established?
   (ii) Identify three basic network components that should be used in installing the network.
   (iii) Explain three advantages of the type of network identified in 4(a)(i).
   (b) Describe two benefits of using bounded media instead of unbounded media in connecting school network.

5. (a) Construct a Visual Basic program that will assist the restaurant to manage its daily sales. The program prompts a user to enter food price via a text box appeared in a form. The program also should display the type of food ordered in a message box according to the price range specified in Table 1.

Table 1: Price Range and Type of Foods.

Price Range	**Type of Food**
Lager or equal to 10000	Sea Food
Lager or equal to 5000	Vegetarian Food
Less than 5000	Other Food

   (b) Write a Visual Basic program that validates the application date of interview for new employees. The interview is valid if the date is today or next four days, otherwise the program displays the message "invalid date" in the message box.
   (c) What is the function of the following Visual Basic tools in customizing a form?
   (i) Option Button
   (ii) Label
   (iii) Timer
   (iv) Combo Box

6. (a) Why is Hyper-Text Markup Language (HTML) not considered as true programming language? Explain by giving two reasons.
   (b) What are the three advantages of embedding JavaScript codes in HTML document?

7. Nzele Company Ltd. plans to utilise computers for managing day-to-day operations in its newly established branch. To meet the requirements, the company purchased computers, the the Microsoft Windows Operating System, and the Microsoft Office program. The company's IT officer installed the software on the computers, starting with the Operating System (OS) followed by Microsoft Office.
   (a) Why is the IT officer started to install OS? Give two reasons.
   (b) Why is the company decided to buy and use the software rather than developing its own? Give three reasons.

SECTION B (30 Marks)

Answer **two (2)** questions from this section.

8. "Effective software development involves various categories of key personnel." Justify this statement by giving eight points.

9. Mashaka has been working for a new album expected to be released at the end of the year. Some of the lyrics, sound tracks, and sampled songs are saved in his computer. A few days ago, Mashaka heard the song in the city radio which had the same lyrics content as one of the songs in his unreleased album. Describe three possible factors which led to the leakage of his song and three ways that could have been used to avoid it.

10. Explain three benefits and three limitations of static data structure in developing computer project.