

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව  
 இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்  
 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka  
**80 E I, II**  
 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2010 දෙසැම්බර්  
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2010 டிசெம்பர்  
 General Certificate of Education (Ord. Level) Examination, December 2010

තොරතුරු හා සන්නිවේදන තාක්ෂණය I, II  
 தகவல், தொடர்பாடல் தொழினுட்பவியல் I, II  
**Information & Communication Technology I, II**

**Information & Communication Technology II**

- \* Answer five questions only, including first question and four other questions.
- \* First question carries 20 marks and each of the other questions carries 10 marks.

1. (i) Write two advantages of removable storage.
- (ii) Classify the following scenarios as either Simplex, Half-Duplex, or Duplex data transmission modes.
  - (a) Watching a TV program
  - (b) A telephone conversation
- (iii) Imagine that you have purchased a few items from a shop. The cashier has issued the bill. You have found that the amount mentioned in the bill is incorrect and you have informed the cashier. By considering yourself as a system, identify the input, process, and the output in the above scenario.
- (iv) Write two advantages of using Information and Communication Technology in processing and releasing G.C.E. (Ordinary Level) Examination results.
- (v) Convert the binary number 11001110 into the hexadecimal equivalent.
- (vi) Convert the number of bytes in 1 KB into the octal equivalent.
- (vii) Prove the following De Morgan's laws using a truth table.
  - (a)  $(A \cdot B)' = A' + B'$
  - (b)  $(A + B)' = A' \cdot B'$
- (viii) Table 1 below consists of a set of tools available in a graphic software. Identify the corresponding tasks in Table 2 and draw lines connecting the matching pairs.

Tool Box
Layers
Key Frame
Color Mixer

Table 1 : Tools

Animation
Gradient Fill
Draw and Edit Objects
Create, Place, and Modify Text and Graphics

Table 2 : Tasks

- (ix) A father gave Rs. 100 to his son and asked him to buy a loaf of bread from a nearby shop and give it to his mother. Provide a suitable algorithm in pseudo code for this task.
  - (x) Assume that you are given the task of developing an information system for a school library, using the System Development Life Cycle (SDLC). Briefly describe the first two phases of the SDLC used in this task.
2. The library of Vidyaloka Vidyalaya has many books. Some books have multiple copies. Students can borrow two books at a time for two weeks.
    - (i) Write two items of data the library should store about a book.
    - (ii) Write three essential items of data recorded by the library staff when a student borrows a book.
    - (iii) Explain the difference between data and information using the library system. Provide one example for each.
    - (iv) Assuming that the library system is manual at present, provide two advantages of using ICT for computerizing the library.

3. The sample spreadsheet in Figure 5 shows the marks obtained by four students Amila, Kapila, Fathima and Raj for four subjects Commerce, English, Mathematics and Science.

	A	B	C	D	E	F	G
1							
2							
3			Amila	Kapila	Fathima	Raj	Average marks per subject
4		Commerce	85	75	75	80	
5		English	75	75	70	70	
6		Mathematics	65	70	85	65	
7		Science	70	65	75	60	
8		Total Marks per student					
9							

Figure 5

- (i) Write the required formula in cell C8 **without** using functions to calculate the total marks obtained by Amila.
- (ii) If the formula entered in cell C8 to calculate Amila's total marks is copied to calculate Kapila's total marks in D8, how would the formula appear in D8?
- (iii) Write the formula to calculate the total marks received by Raj using the function "SUM" in cell F8.
- (iv) Using the functions available in spreadsheet software to calculate average, write the formula to calculate the average marks of students for Commerce in cell G4.
- (v) The class teacher wants to compare the performance of two students in four subjects in a single chart. Provide **two** appropriate chart types available in spreadsheet software for this purpose.

4. (i) In a cycle race, the participating cyclists are required to **qualify** from the preliminary stage into the final stage, by passing a medical test and then by completing **ten** rounds in a circular track. Those who do not pass the medical test will not be allowed to attempt **ten** rounds in the track. Those who complete **ten** rounds in the track are eligible to participate in the final stage. Others who get tired and are unable to complete **ten** rounds in the track are eliminated from the contest.

Write down respectively the appropriate terms derived from the above scenario to fill in the blanks in (a), (b), (c), (d), (e) and (f) in the flowchart in Figure 6.

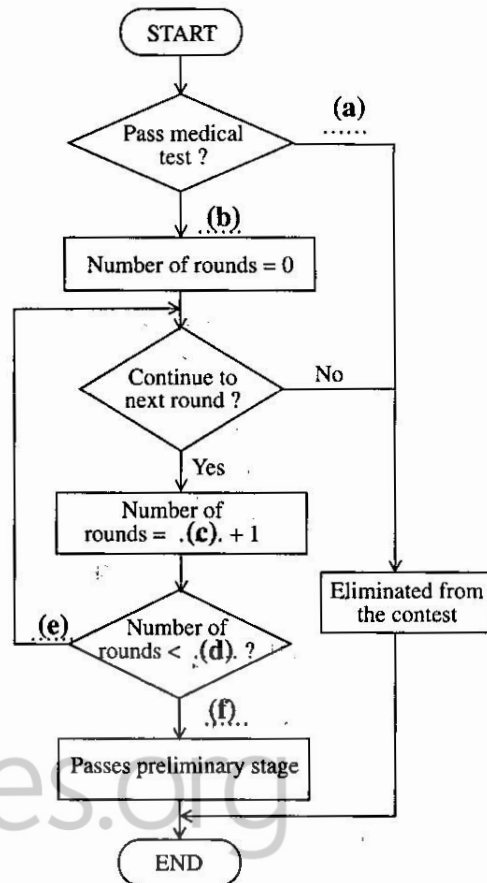


Figure 6

- (ii) The flowchart in Figure 7 represents the algorithm for reading the student marks in a class and displaying average, maximum and minimum.

Write a pseudo code for the logic in the flowchart for the above scenario.

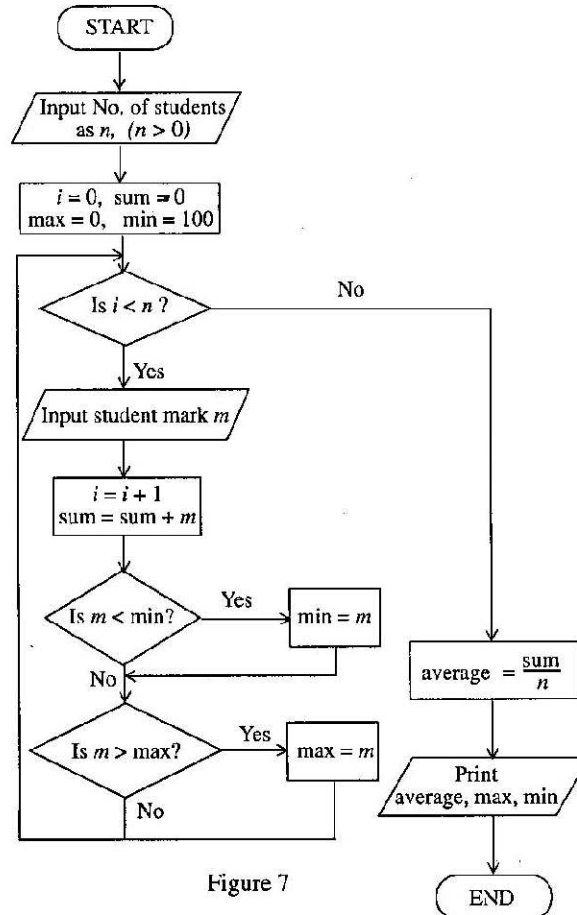


Figure 7

5. Imagine that your parents have provided you with a new desktop computer. The parents have also decided to provide the Internet connectivity to your computer.
- Briefly describe **two** potential threats that you may face when your computer is connected to the Internet.
  - Describe **two** methods of protecting the computer from such threats.
  - Briefly explain **three** factors you would consider in order to avoid health issues that may arise in using this computer.
  - Imagine that your friend gave you a copy of computer gaming software which has been bought for his personal use. Do you think it is suitable to install and use the software in your new computer? Explain the reasons for your answer.
6. (i) Explain how the Health Sector has benefited from Information and Communication Technology (ICT), using **two** example applications.
- (ii) Describe how ICT can be used in teaching and learning process. Your answer should include **two** examples of educational applications.
- (iii) Explain how farming in Sri Lanka could be improved by using ICT. Provide **three** examples.
- (iv) Explain **three** barriers Sri Lankan general public may face in reaping the benefits of the Internet.

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