

General Information Technology

GIT - 2012

Paper - II

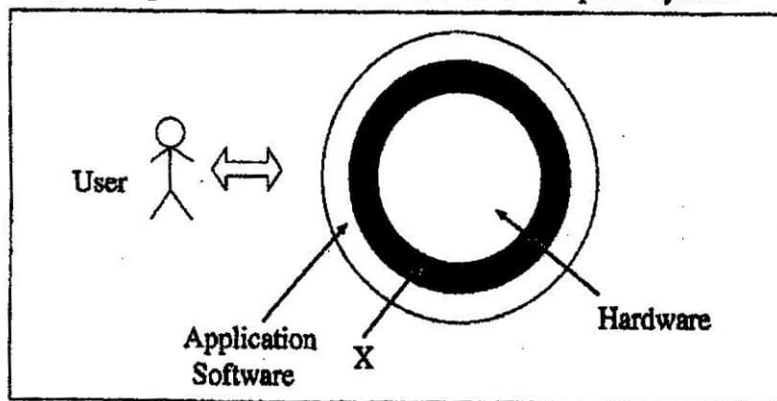
Question 1

1. (a) (i) Copy the following table into your answer sheet and complete the columns 3, 4 and 5.

1	2	3	4	5
X	Y	$P = \text{NOT}(X \text{ AND } Y)$	$Q = X \text{ OR } Y$	$R = P \text{ AND } Q$
0	0			
0	1			
1	0			
1	1			

- (ii) Construct a logic circuit to represent the above truth table considering X and Y as inputs and R as the output.

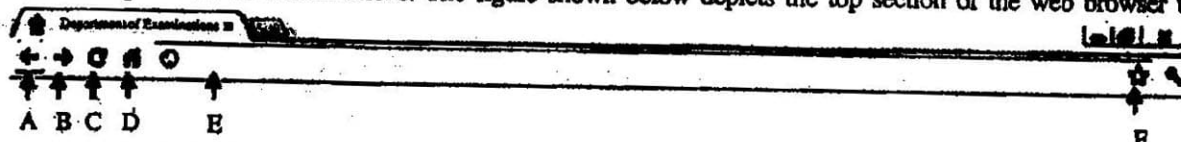
- (b) The following diagram represents an abstract view of a computer system.



- (i) Name the layer labelled as X.
- (ii) Write one function each for layers labelled as X and Hardware.
- (iii) Provide an example for a software which could be considered as a part of the application software layer.
- (c) The agriculture teacher of a school intends to conduct a field study at a nearby park to identify the plants in the environment using the images of the plants stored in a computer. The class consists of 12-15 students. The expected duration of the lesson is 30-40 minutes.
- (i) What is the most suitable type of computer that could be used for this activity?
- (ii) Provide two reasons to justify your answer.

Question 2

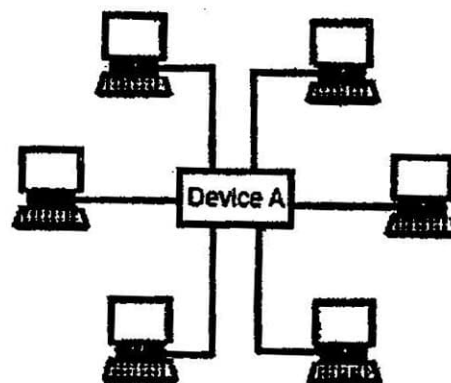
2. (a) Amila used a computer in the school laboratory to obtain his G.C.E. O/L results online through the website of the Department of Examinations. The figure shown below depicts the top section of the web browser used.



Use the labels A, B, C, D, E and F in the above diagram to provide answers for questions (i), (ii) and (iii) given below.

- Which label corresponds to the area where Amila should type the Web address (URL) of the Department of Examinations?
- After viewing the results, Amila visited the website of the National Institute of Education (NIE) to download the syllabus for the General Information Technology (GIT) subject. He decided to 'Bookmark' (add to favourites) the site for future reference. Which label denotes the icon that Amila should use?
- After bookmarking the NIE website, he decides to revisit the website of the Department of Examinations. What is the label of the icon he should use for this purpose?
- Amila found the relevant URL to download the syllabus of the GIT subject as <http://www.nie.sch.lk/ebook/e12sy141.pdf>. Write down the domain name of this URL.

- (b) Umar is setting up a computer network with six computers in a small room as shown in the diagram. He uses Unshielded Twisted Pair (UTP) cables to connect Device A to the computers through the Interface Component B which is fixed inside the computers.




- Name the device labelled as 'A'.
- What is the area network type that Umar is planning to setup?
- Name the interface component B.
- Write two advantages of setting up a computer network instead of using these computers as standalone machines.
- List one device which could be connected to this network either through Device A or through any of the computers in the network.

Question 3

3. (a) The following document has been created using a word processing software. Study the document and answer the questions given below.

Free and Open Source Software

B



A

TM
open source

"Free and open-source software (F/OSS, FOSS) or free/libre/open-source software (FLOSS) is software that is both free software and open source. It is liberally licensed to grant users the right to use, copy, study, change, and improve its design through the availability of its source code. This approach has gained both momentum and acceptance as the potential benefits have been increasingly recognized by both individuals and corporations."

(source: Wikipedia.org)

The following table shows some of the examples for FOSS and their types.

Name of Software	Type
Hanthana Linux	Linux based operating system
Libre Office	Collection of Office applications
Dia	Diagram creation tool
Blender	3D computer graphics software
Scribus	Desktop publishing application

- What is the tool that can be used to create the title labelled as A?
- Write down the steps required to insert the picture labelled as B. Assume that the picture is stored as mypic.jpg in C:\mydocs folder.
- What type of alignment has been used for the paragraph labelled as C?
- Write down the steps required to insert the table labelled as D.
- Write down the steps needed to add another row at the bottom of the table labelled as D.

- (b) Assume that you have to prepare an electronic presentation with five slides by using a commonly available presentation software.

- List three types of views available in a presentation software.
- What is the most suitable view to be used to rearrange these slides easily?
- Write down the steps needed to apply a given design to all five slides.
- Write down the steps needed to change the background colour of the first slide.

- (a) An islandwide census of population in Sri Lanka was conducted in 2011. The last time such a census has been carried out was in 1981. The following is an extract from a table that compares the changes in the population in Sri Lanka between 1981 and 2011.

	A	B	C	D	E
1	Population in Sri Lanka				
2	District	Population		Population growth in 30 years	
3		1981	2011	Number	Per cent
4	Colombo	1,675,847	2,923,826		
5	Gampaha	1,367,813	2,298,588		
6	Kaluthara	823,964	1,214,880		
7	Kandy	1,032,335	1,368,216		
8	Matale	352,860	482,348		
9	Nuwara Eliya	583,716			
10			1,059,046		
11	Anuradhapura	575,546	855,562		
12	Polonnaruwa	253,411	403,859		
13	Badulla	620,839	811,225		
14	Monaragala	269,684	448,194		
15	Ratnapura	779,927	1,082,299		
16	Kegalle	678,456	897,179		
17	Sri Lanka				
18	Population in the least populous district				

Source: Department of Census and Statistics, Sri Lanka

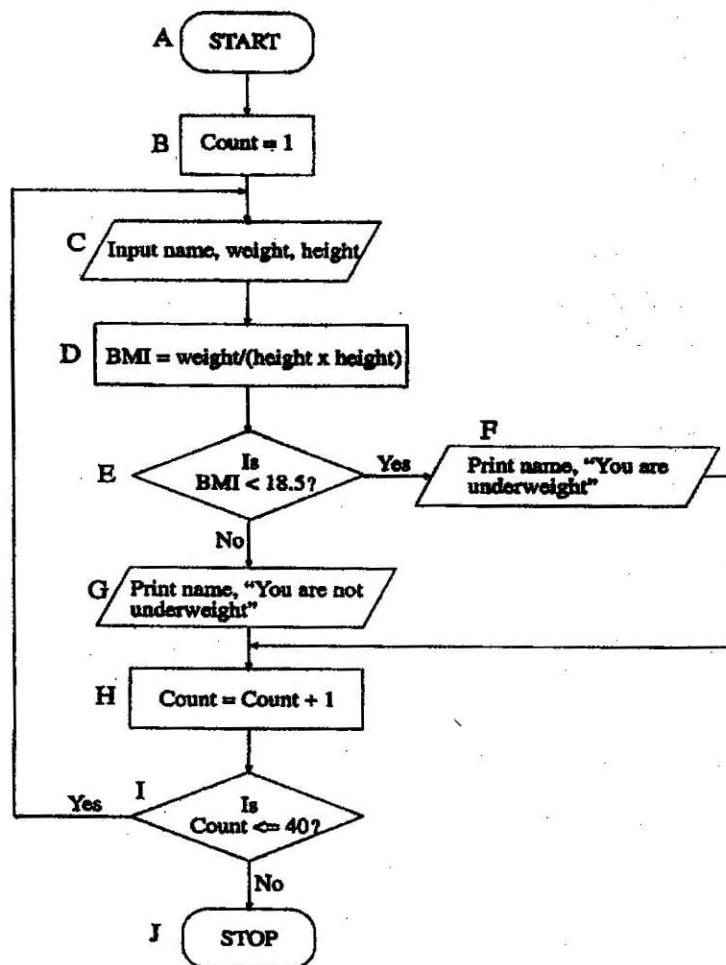
- Write down the formula necessary for Cell C26 to calculate the total population in Sri Lanka in 2011 using a single function.
 - Write down the formula necessary for Cell E5 to calculate the percentage increase in the population in Gampaha district between 1981 and 2011. (Hint: Percentage increase = $(\text{population in 2011} - \text{population in 1981}) \times 100 / \text{population in 1981}$).
 - Write down the formula necessary for Cell C27 to display the population in the least populated district in Sri Lanka in 2011 using a single function.
 - Assume that you want to compare the changes in the population in all the districts between 1981 and 2011. Name the type of chart that is most suitable for this purpose. Justify your answer.
- (b) Assume that the teacher-in-charge of sports in your school asked you to create a database table with the following fields to hold the data of the participants in the annual sports meet.

Field Name	Description	Example
Number	Contestant Number (A number between 1 and 1000)	19
Name	Name of the contestant	Nimal Perera
Event	Track/Field event	4 × 100 relay
DOB	Date of Birth	03.05.1998
Fee	Whether the registration fee has been paid or not	Yes

- Identify the most suitable data type for each of the above fields.
- Name the component (object) provided by the database management software to generate a list of names of all the participants in the sports meet.

Question 5

5. (a) (i) List two advantages of using flow charts when designing a computer program.
 (ii) Draw a flow chart to read two numbers, calculate the sum and print the result.
 Note: You are required to use the correct symbols for direction flow, start/stop, input/output and process.
- (b) A Health Science teacher needs a computer program to identify the underweight students in her class. The class consists of 40 students. The underweight students are identified using their Body Mass Index (BMI). BMI is calculated by dividing the weight in kilograms by the square of the height in meters. The following flow chart is drawn for the required program. The symbols are labelled from A to J for reference.



Use the above flow chart to answer the following questions.

- Write down the input(s) of the flow chart.
- Write down one possible output of the flow chart.
- Write the condition of the iteration.
- Write the statement that helps to terminate the iteration.
- List the label(s) that is/are executed within the selection control structure.
- What is the value assigned to Count when the loop terminates?
- If all the students in the class are not underweight, name the label of the step that will not be executed in the given flow chart.

Question 6

6. (a) (i) Saman is currently employed as a web developer. List two main job tasks of Saman's present employment.
- (ii) He intends to change his job to become a network administrator. List three job tasks of the intended job.
- (b) Yogan works as a data entry operator. He often complains of poor working conditions which cause eye strain and back pain after working for long hours at office.
- (i) What is the most probable health condition he is experiencing?
- (ii) Suggest three ways of minimizing such health effects experienced by Yogan.
- (c) One of your relatives complains that his office computer which is connected to the office computer network has been infected by a virus.
- (i) List two possible causes for the virus infection.
- (ii) Name the type of software application that could be installed to protect the computer from such virus infections and explain how this protection could be maintained continuously.
- (iii) Name one potential security threat other than virus infection that could affect this computer through the network.
- (iv) Write one method that can be used to protect the computer from the threat you have identified in part (iii) above.