GIT 01 E I, II

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பொதுத் தகவல் தொழினுட்பவியல் பரீட்சை,	2012
General Information Technology Examination, 2012	

| සාමාන්‍ය තොරතුරු තාක්ෂණය | I, II | | පැය තුනයි |
| பொதுத் தகவல் தொழினுட்பவியல் | I, II | | மூன்று மணித்தியாலம் |
| General Information Technology | I, II | | **Three hours** |

General Information Technology   I

Important : * *Answer all questions on the Answer Sheet provided.*
* *Write your Index Number in the space provided on the answer sheet.*
* *Instructions are given on the back of the answer sheet. Follow them carefully.*
* *In each of the questions 1 to 40, pick one of the alternatives (1), (2), (3), (4) which
is correct or most appropriate and mark your response on the answer sheet in
accordance with the instructions given therein.*

1. Decimal equivalent to Binary 10101101 is
   (1) 170   (2) 173   (3) 177   (4) 191

2. The price of a pineapple is Rs. 160/- and the price of a mango is Rs. 40/-. The total price of a pineapple
   and a mango in Binary form is
   (1) 10001000   (2) 11001000   (3) 11011000   (4) 11011010

3. The output of NOT(NOT(A OR B)) is equivalent to
   (1) NOT(A OR B)   (2) A OR B   (3) A AND B   (4) NOT(A AND B)

4. Which of the following represents the correct order of evolution of the technology used in computer processors?
   (1) Transistor, Vacuum Tube, Integrated Circuit (IC), Very Large Scale Integration (VLSI)
   (2) Vacuum Tube, Transistor, Integrated Circuit (IC), Very Large Scale Integration (VLSI)
   (3) Vacuum Tube, Integrated Circuit (IC), Transistor, Very Large Scale Integration (VLSI)
   (4) Vacuum Tube, Integrated Circuit (IC), Very Large Scale Integration (VLSI), Transistor

5. Which of the following represents an input device, a storage device and an output device respectively?
   (1) Keyboard, Hard Disk, Microphone   (2) Mouse, Keyboard, Printer
   (3) Keyboard, Touch Pad, Mouse   (4) Scanner, Flash Memory, Speaker

6. The output of the logic circuit shown below is 1.
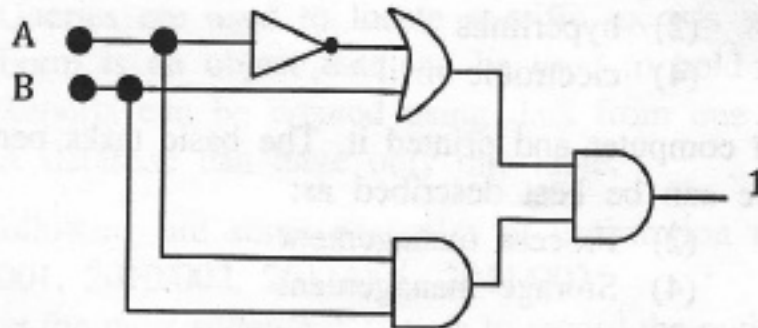
   What should be the inputs of A and B respectively?
   (1) 0, 0   (2) 0, 1   (3) 1, 0   (4) 1, 1

7. Which of the following types of information systems mainly deals with the operational level data in business
   transactions?
   (1) Management Information System (MIS)   (2) Transaction Processing System (TPS)
   (3) Decision Support System (DSS)   (4) Executive Information System (EIS)
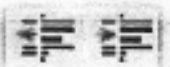
8. Consider the following truth table:

A	B	A ∇ B
0	0	1
0	1	0
1	0	0
1	1	0

Which of the following is represented by the symbol ∇ ?
(1) OR   (2) AND   (3) NOT(OR)   (4) NOT(AND)

9. Amal has connected his mobile phone to a notebook computer without using physical cables to transfer some photographs from his mobile phone to the notebook computer. Which of the following types of communication media is/are used for this purpose?
  A - Guided media   B - Unguided media   C - Bounded media   D - Unbounded media
(1) A and B only   (2) A and C only   (3) B and C only   (4) B and D only

10. School Net is a network that connects 1000 secondary schools, 100 computer resource centres and many other institutes relating to education across Sri Lanka. Which of the following network type is most appropriate for School Net?
(1) Local Area Network   (2) Metropolitan Area Network
(3) Wide Area Network   (4) Bluetooth Network

11. A network cable needs to be laid in an area where Electro Magnetic Interference (EMI) is present. Which of the following cable type is most suitable for this purpose?
(1) Shielded Twisted Pair (STP)   (2) Unshielded Twisted Pair (UTP)
(3) Coaxial   (4) Fiber Optic

12. Isath wants to send an email to Nasmi with a copy to Dhanu. However, Isath does not want Nasmi to find out that a copy of the email has been sent to Dhanu. In which of the following fields should Dhanu's email address be included?
(1) To   (2) CC   (3) BCC   (4) Subject

13. Which of the following characters should **not** be used in an email address?
(1) @ sign   (2) Comma (,)   (3) Underscore (_)   (4) Period (.)

14. Which of the following combinations represents the services of the Internet?
(1) Email, World Wide Web, HTTP   (2) Email, Web browsers, File sharing
(3) Email, World Wide Web, File sharing   (4) Email, HTTP, File sharing

15. Firefox, Chrome, Internet Explorer are examples for
(1) web pages.   (2) operating systems.   (3) web browsers.   (4) protocols.

16. "Different web pages in a website are connected together by using ...."
Which of the following phrases best fit to fill in the given blank of the above statement?
(1) web browsers   (2) hyperlinks
(3) File Transfer Protocol   (4) electronic mail

17. Vimal typed a document using the keyboard of a computer and printed it. The basic tasks performed by the operating system of the computer in this instance can be best described as:
(1) File and folder management   (2) Process management
(3) Controlling input/output   (4) Storage management

18. Consider the following statements A and B:
    A - An operating system allows users to interact with and control a computer.
    B - Graphical User Interface of an operating system makes it convenient for users to interact with and control a computer.
Which of the following is correct in relation to statements A and B given above?
(1) Both A and B are true.   (2) A is false but B is true.
(3) A is true but B is false.   (4) Both A and B are false.

19. It is a good habit to create duplicates of your files/folders in an external hard disk in order to protect them from accidental deletion. This task is known as
(1) defragmentation.   (2) backing up.   (3) disk cleaning up.   (4) disk formatting.

20. Computers allow different users to customize the desktop theme according to their preferences. Which of the following functions of an operating system controls this activity?
    (1) Folder management   (2) Process management   (3) File management   (4) User account management

21. What is the shortcut key combination that can be used to insert a new slide into an electronic presentation?
    (1) Ctrl + X   (2) Ctrl + M   (3) Ctrl + S   (4) Ctrl + N

22. "The drawing tool bar can be used to .... in editing a document using word processing software."
    Which of the following phrases best fits to fill in the given blank of the above statement?
    (1) align the text   (2) create auto shapes, lines, circles etc.
    (3) create a list of items   (4) add print enhancements

23. Consider the following two statements A and B:
    A - Compared to word processors, simple text editors such as Notepad, Emacs have limited editing features.
    B - Files created with the simple text editors cannot be opened with word processors.
    Which of the following is correct with respect to statements A and B?
    (1) Both A and B are true.   (2) A is true but B is false.
    (3) A is false but B is true.   (4) Both A and B are false.

24. The two icons [icon] [icon] in a word processing software are used to
    (1) decrease or increase the font size of a paragraph.
    (2) decrease or increase the indent level of a paragraph.
    (3) decrease or increase the line spacing of a paragraph.
    (4) convert the selected text to a numbered list or a bulleted list.

25. Which of the following are examples for spreadsheet packages?
    A - Microsoft Excel   B - OpenOffice.org Calc   C - Fedora
    (1) A and B only   (2) B and C only   (3) A and C only   (4) All A, B and C

26. Which of the following formulae will generate the correct result in Cell D5?
    (1) =Add(D2:D4)
    (2) =Total(D2:D4)
    (3) =Sum(D2:D4)
    (4) =Count(D2:D4)

	A	B	C	D
		Unit price (Rs.)	Number of units sold	Total Price (Rs.)
1	Item			
2	Pens	10	2	20
3	Exercise books	30	6	180
4	Pencils	6	3	18
5	Total			218

27. What is the function available in spreadsheet software to find the average of the numbers in a selected range?
    (1) avg( )   (2) count( )   (3) average( )   (4) mean( )

28. What is the correct statement regarding Database Management Systems?
    (1) Queries are used to locate specific records within tables.
    (2) Form is an object that can be used to hold data.
    (3) Reports can be created using data from one table only.
    (4) A database can have only one table.

29. The following are some examples of registration numbers of members in a particular library:
    2010/001, 2010/002, 2011/001, 2011/002
    What is the most suitable data type to record the registration numbers in a database to hold member information?
    (1) Text   (2) Number   (3) Currency   (4) Yes / No

30. "A .... is any field or combination of fields in a database table that uniquely identifies each record."
    Which of the following word(s) best fits to fill in the given blank of the above statement?
    (1) Cell   (2) Primary key   (3) Logical key   (4) Query

31. Which of the following aspects is least important in purchasing a home computer?
    (1) Hardware specifications of the machine   (2) After sales support
    (3) Warranty period   (4) Appearance of the chassis (casing)

- Consider the following flow chart for questions **32** to **35**.

32. What are the control structures that represent the decisions "Is X <= 10? and "Is X an even number" respectively?
    (1) Sequence, Iteration   (2) Iteration, Selection
    (3) Iteration, Sequence   (4) Selection, Iteration

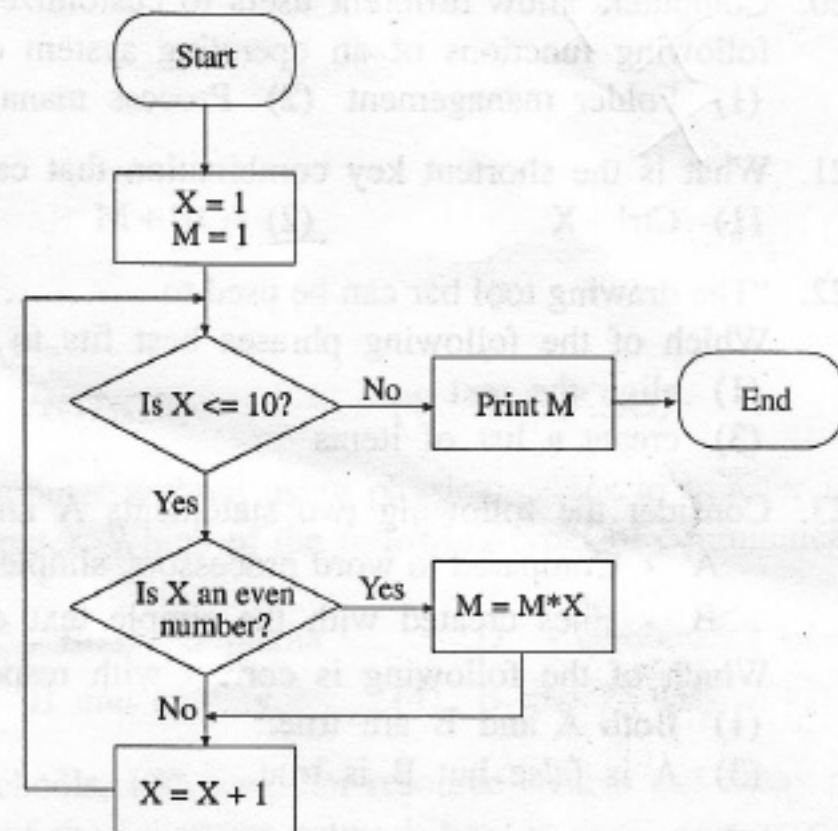33. Choose the most correct decision that terminates the iteration.
    (1) X > 10   (2) X < 10
    (3) X < = 10   (4) X > = 10

34. What is the output of the flow chart?
    (1) 384   (2) 640
    (3) 945   (4) 3840

35. If the process X=X+1 is changed to X=X+2, how many times will the process M=M*X be executed?
    (1) 0   (2) 5
    (3) 10   (4) 11

Flow chart:
Start → X = 1, M = 1 → Is X <= 10? — No → Print M → End; Yes → Is X an even number? — Yes → M = M*X; No → X = X + 1 (loops back)

36. Consider the following statements regarding ethical issues in computing:
    A - Buying a CD which contains an unlicensed copy of a software.
    B - Gaining unauthorized access to a computer.
    C - Creating and distributing viruses.
    D - Using a computer with licensed software.
    Which of the above relates to unethical behaviour of an individual?
    (1) A and C only.   (2) A and D only.   (3) C and D only.   (4) A, B and C only.

37. Consider the signal types shown below.

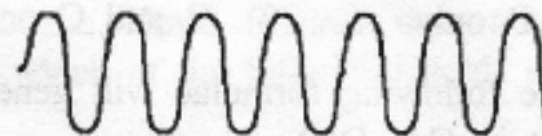Figure 1   Figure 2

Which of the following examples represent the signal types shown in figure 1 and figure 2 respectively?
    (1) Blowing of wind, playing a song using a computer
    (2) Playing a song using a computer, blowing of wind
    (3) Playing a song using a computer, waves of the sea
    (4) Blowing of wind, waves of the sea

38. Consider the following statements:
    A - Digital Divide is the division of population according to the accessibility to the ICT resources.
    B - Digital Divide is a result of socio-economic differences.
    C - Digital Divide is the division of web servers in the Internet based on the geographic location of countries.
    Which of the above is/are **true** regarding Digital Divide?
    (1) A only   (2) B only   (3) A and B only   (4) B and C only

39. A teacher needs to download two educational software packages from the Internet, with sizes 24MB and 1200 MB respectively. He intends to store both software in a 2 GB flash memory stick. Assume that 50% of the flash memory capacity is already used. Which of the following statements is true with respect to the availability of space in the flash stick for storing the software?
    (1) Both software can be stored.
    (2) Only the software with the size of 24MB can be stored.
    (3) Any one of the software can be stored.
    (4) None of the software can be stored.

40. Consider the following statements:
    A - Internet is the worldwide network of computers and its content is always accessible only within the country where the server is located.
    B - Content on the Internet may be legal in one country while it is illegal in another country.
    C - Laws regarding the content on the Internet are same in all countries.
    Which of the above is/are true regarding the Internet and its content?
    (1) A only   (2) B only   (3) A and B only   (4) B and C only
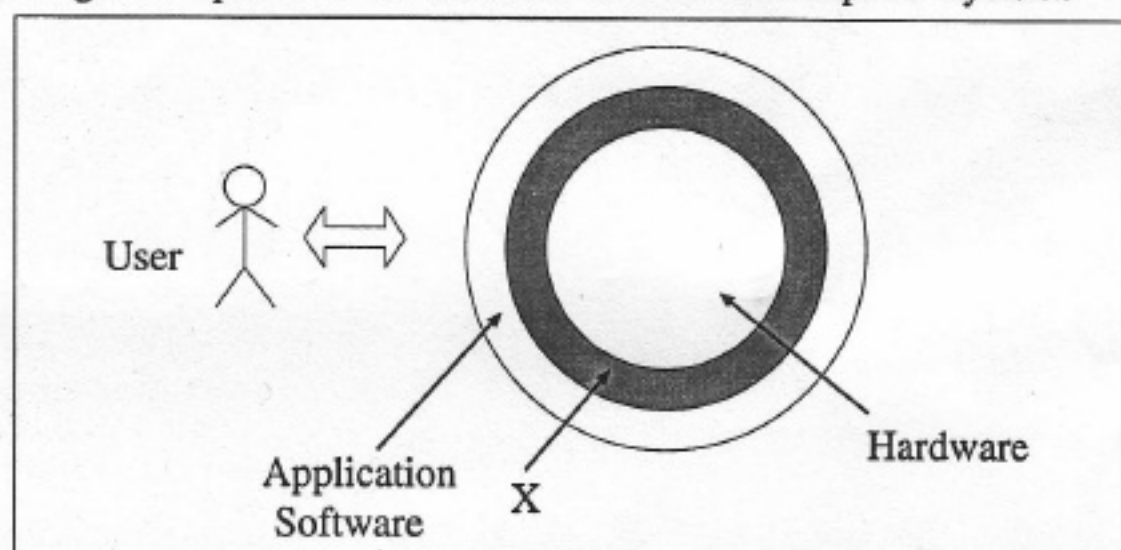
* *

Department of Examinations, Sri Lanka Department of Examinations

| GIT | 01 | E | I,II |

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සාමාන්‍ය තොරතුරු තාක්ෂණය	I, II
பொதுத் தகவல் தொழினுட்பவியல்	I, II
General Information Technology	**I, II**

General Information Technology II

✳ *Answer four questions only.*

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 = NOT(X AND Y)	Q = X OR Y	R = P 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.

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.
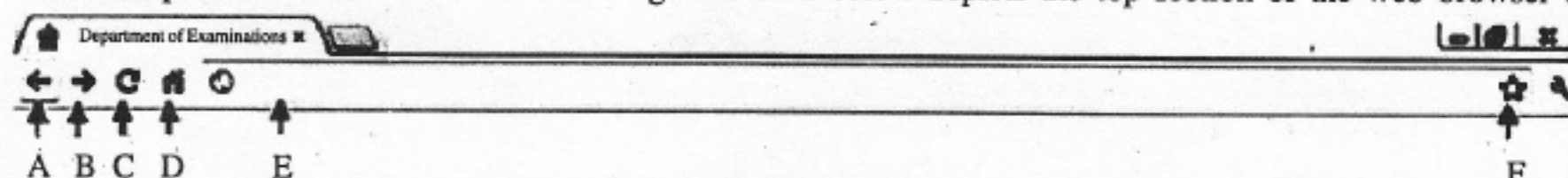
(i) Which label corresponds to the area where Amila should type the Web address (URL) of the Department of Examinations?

(ii) 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?

(iii) 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?

(iv) 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.

   (i) Name the device labelled as 'A'.

   (ii) What is the area network type that Umar is planning to setup?

   (iii) Name the interface component B.

   (iv) Write **two** advantages of setting up a computer network instead of using these computers as standalone machines.

   (v) List **one** device which could be connected to this network either through Device A or through any of the computers in the network.
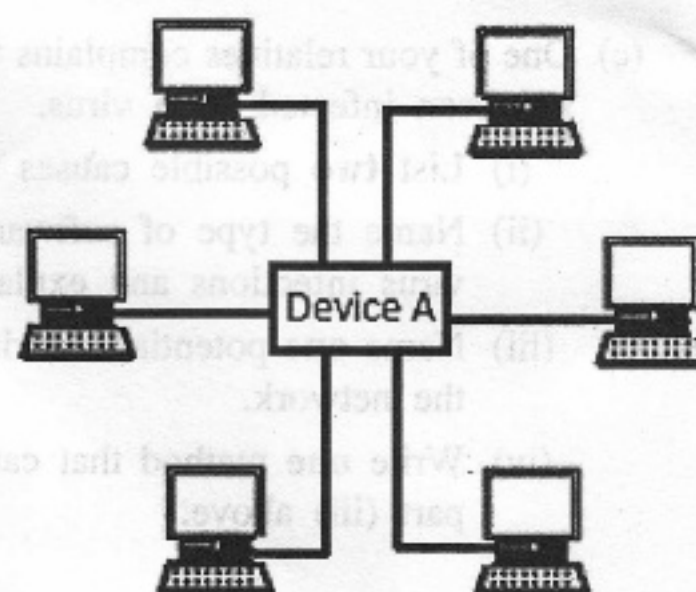
3. (a) The following document has been created using a word processing software. Study the document and answer the questions given below.

Free and Open Source Software

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

   (i) What is the tool that can be used to create the title labelled as A?

   (ii) 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.

   (iii) What type of alignment has been used for the paragraph labelled as C?

   (iv) Write down the steps required to insert the table labelled as D.

   (v) 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.

    (i) List **three** types of views available in a presentation software.

    (ii) What is the most suitable view to be used to rearrange these slides easily?

    (iii) Write down the steps needed to apply a given design to all five slides.

    (iv) Write down the steps needed to change the background colour of the first slide.

4. (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	2,323,826		
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			
19			1,059,046		
20	Anuradhapura	575,546	855,562		
21	Polonnaruwa	253,411	403,859		
22	Badulla	620,839	811,225		
23	Monaragala	269,684	448,194		
24	Ratnapura	779,927	1,082,299		
25	Kegalle	678,456	837,179		
26	Sri Lanka				
27	Population in the least populous district				
28	Source: Department of Census and Statistics, Sri Lanka				

    (i) Write down the formula necessary for Cell C26 to calculate the total population in Sri Lanka in 2011 using a single function.

    (ii) 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 = (population in 2011 - population in 1981)*100/population in 1981).

    (iii) 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.

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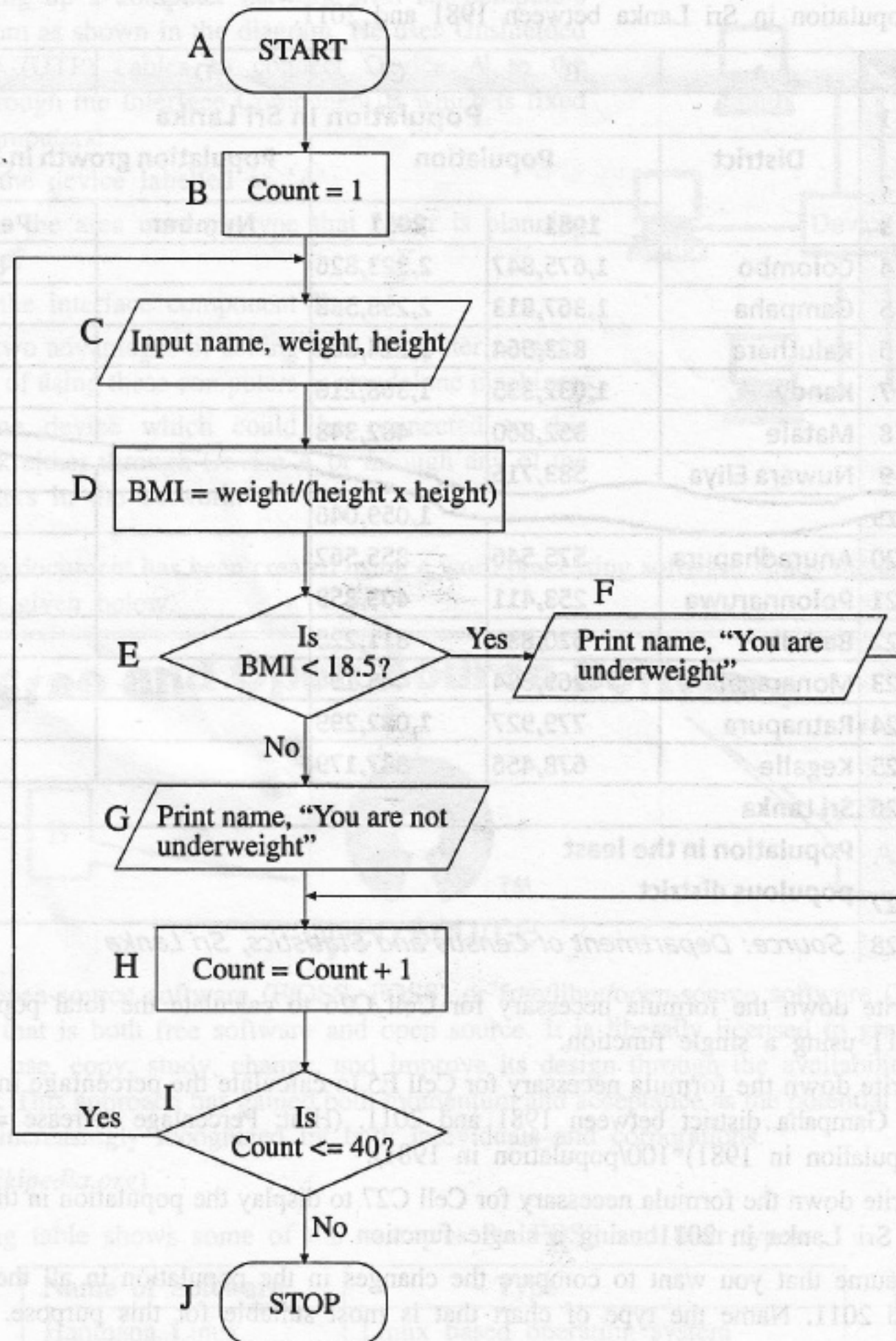
Field Name	Description	Example
Number	Contestant Number (A number between 1 and 1000)	19
Name	Name of the contestant	Nimal Perera
Event	Track/Field event	4 × 100 relay
DOB	Date of Birth	03.05.1998
Fee	Whether the registration fee has been paid or not	Yes

    (i) Identify the most suitable data type for each of the above fields.

    (ii) Name the component (object) provided by the database management software to generate a list of names of all the participants in the sports meet.

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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.

A START

B Count = 1

C Input name, weight, height

D BMI = weight/(height x height)

E Is BMI < 18.5? — Yes → F Print name, "You are underweight"

No

G Print name, "You are not underweight"

H Count = Count + 1

I Is Count <= 40? — Yes

No

J STOP

Use the above flow chart to answer the following questions.

(i) Write down the input(s) of the flow chart.

(ii) Write down **one** possible output of the flow chart.

(iii) Write the condition of the iteration.

(iv) Write the statement that helps to terminate the iteration.

(v) List the label(s) that is/are executed within the selection control structure.

(vi) What is the value assigned to Count when the loop terminates?

(vii) 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.

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.

✳ ✳ ✳