

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
 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
 දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
 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

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2013 දෙසැම්බර්
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2013 டிசம்பர்
 General Certificate of Education (Ord. Level) Examination, December 2013

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

පැය තුනයි
 மூன்று மணித்தியாலம்
Three hours

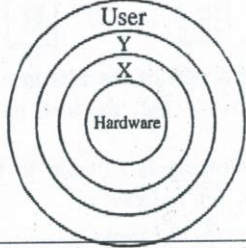
Information & Communication Technology I

Note: (i) Answer all questions.
 (ii) In each of the questions from 1 to 40, pick one of the alternatives (1), (2), (3), (4) which you consider as correct or most appropriate.
 (iii) Mark a cross (X) on the number corresponding to your choice in the answer sheet provided.
 (iv) Further instructions are given on the back of the answer sheet. Follow them carefully.

1. Consider the following conversion of data into information:
 Data → X → Information

Which of the following is most suitable to replace X?
 (1) Displaying (2) Processing (3) Programming (4) Testing

2. Consider the diagram on the right:
 Which of the following is most suitable for labels X and Y?
 (1) X = Operating system Y = Application software
 (2) X = Application software Y = Operating system
 (3) X = Utility software Y = Operating system
 (4) X = Application software Y = Utility software



- Which of the following lists the modern storage media in the order of increasing capacity?
 (1) CD, DVD, Hard disk (2) DVD, CD, Hard disk
 (3) DVD, Hard disk, CD (4) Hard disk, CD, DVD
- A computer has a memory (RAM) capacity of 4 GB. Which of the following is equivalent to the RAM capacity of the computer?
 (1) 4096 Bytes (2) 4096 KB (3) 4096 MB (4) 4096 TB
- Which of the following is most suitable as a primary key for a database table used for storing data about books in a library?
 (1) book number (2) publisher (3) surname of author (4) book title
- When a program is executed, instructions and data are directly brought into the Central Processing Unit through the cache memory from the _____.
 Which of the following is the best to fill the blank?
 (1) CD (2) Hard disk (3) Main memory (4) Computer network
- With the development of technology the vacuum tubes were replaced by-transistors. Which of the following is correct regarding the resultant changes to the computer?
 (1) Speed decreased, power consumption increased and size decreased
 (2) Speed decreased, power consumption increased and size increased
 (3) Speed increased, power consumption decreased and size decreased
 (4) Speed increased, power consumption decreased and size increased
- Which of the following are correct regarding programming languages?
 A - Programs can be written using binary symbols (0 and 1).
 B - Assembly language programs are converted to machine language programs using Assemblers.
 C - Programming in Third Generation Languages is easier than using Assembly language.
 (1) A and B only (2) A and C only (3) B and C only (4) All A, B and C
- Which of the following is equivalent to 127_{10} ?
 (1) 01111101_2 (2) 11111110_2 (3) 177_8 (4) FF_{16}

See page two

10. The binary equivalent of $A9_{16}$ is:
 (1) 10100100₂ (2) 10101001₂ (3) 10101100₂ (4) 11101001₂
11. Which one is the smallest out of the following Binary Coded Decimal (BCD) representations?
 (1) 01111001 (2) 10000000 (3) 10010101 (4) 10011001
12. If the character 'a' is represented in ASCII as 1100001 then the character 'e' would be represented as:
 (1) 1100001 (2) 1100011 (3) 1100100 (4) 1100101
13. Which of the following is/are direct function(s) of an operating system?
 A - managing user accounts
 B - managing memory of the computer
 C - check the spellings of words in a document
 (1) A only (2) A and B only (3) B only (4) B and C only
14. Which of the following is considered as formatting text?
 (1) Changing the slide layout of an electronic presentation.
 (2) Making content of a cell in a spreadsheet software bold.
 (3) Inserting an image to a word processed document.
 (4) Checking spelling of a word processed document.
15. Consider the sentence (A) which is subsequently formatted as sentence (B) using a word processing software:
 (A) - The next Olympic games will be held in Tokyo, Japan.
 (B) - The next Olympic games will be held in Tokyo, Japan.
 Which of the following formatting tools has been used to obtain (B) from (A)?
 (1) **U** and **☰** (2) **B** and **U** (3) **U** and **I** (4) **I** and **☰**
16. In order to move a part of the text in a document being edited using a word-processing software, first select the text to be moved, (A). the text, move the cursor to the place where the text is to be moved and (B).. the text.
 Which of the following is suitable to fill the blanks (A) and (B)?
 (1) (A) = Copy, (B) = Insert (2) (A) = Copy, (B) = Paste
 (3) (A) = Cut, (B) = Insert (4) (A) = Cut, (B) = Paste

17. Consider the following:
 A = average(A1:D5) B = average(A1, D5) C = average(A1:D5, F5)
 Which of the above are correct spreadsheet functions?
 (1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

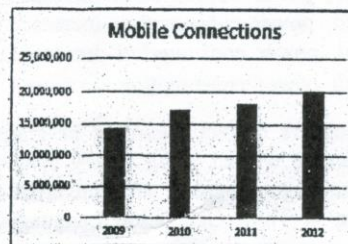
18. The cell A4 of the following spreadsheet segment contains the formula = \$A2+A3.

	A	B
1		
2	3	4
3	2	3
4	5	
5		

- If you copy this formula to cell B4, what value will be displayed in cell B4?
 (1) 5 (2) 6 (3) 7 (4) 8

19. Consider the following spreadsheet segment containing the number of mobile connections in Sri Lanka and the corresponding chart:

	A	B	C
1			
2		Year	Mobile Connections
3		2009	14,264,442
4		2010	17,267,407
5		2011	18,319,447
6		2012	20,324,070
7			



- Which of the following indicates the correct cell ranges for the X and Y axes of the chart?
 (1) X=B1:B7 and Y=C1:C7 (2) X=B3:B6 and Y=C3:C6
 (3) X=B2:C7 and Y=C2:B7 (4) X=C3:C6 and Y=B3:B6

[see page three

20. Which of the following is **not** a task of *design* and *coding* stages of the system development life cycle (SDLC)?
- (1) Writing programs (2) Creation of suitable interfaces
(3) Identification of user requirements (4) Selection of a programming language

21. Which of the following functionalities are specific to electronic presentation software?
- A: Object animation B: Slide transition C: Find and Replace
- (1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

- Consider the following database table used by a shop that sells computer parts in answering questions 22 and 23.

Part_Num	Part_Name	Quantity	Unit_Price
P001	Optical Mouse	5	500
P002	16 GB USB Flash Drive	20	2,000
P003	DVDRW Drive	5	2,500

22. All data about one computer part in the table is called a
- (1) field. (2) key. (3) query. (4) record.
23. How many fields are there in the table?
- (1) 1 (2) 3 (3) 4 (4) 12
24. Krishna has developed a new computer-based student information system to replace the current manual information system in the school. She proposes to use both systems for two months in parallel. Which of the following can be the reason for her proposal?
- (1) To reduce disruptions relating to new system's failure
(2) To reduce possibility of malfunctioning of the new system
(3) To reduce security threats to system
(4) To reduce testing and debugging time

25. Sarath has been asked to write a computer program to compute the average rainfall in an year. Consider the following included in the computation:

- A - number of days in the year
B - calculating the total rainfall for the year by adding together rainfall for each day of the year
C - calculating average rainfall by dividing the total rainfall from number of days in the year
D - the average rainfall for the year
E - rainfall for each day of the year

Which of the following is true regarding the inputs, processes and output of the above computation?

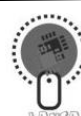
- (1) inputs: A, B processes: C, D output: E (2) inputs: A, E processes: B, C output: D
(3) inputs: A, D processes: B, C output: E (4) inputs: B, E processes: A, C output: D
26. Domain Name System (DNS) server translates ...^(A)... into ...^(B)... .
Which of the following is suitable to fill the blanks ^(A) and ^(B) in the above statement?
- (1) ^(A) = a Top level domain ^(B) = an IP address
(2) ^(A) = a Web address (URL) ^(B) = an IP address
(3) ^(A) = an Email address ^(B) = an IP address
(4) ^(A) = an IP address ^(B) = a Web address (URL)

27. Which of the following can be used to identify a Web page uniquely?
- (1) Domain name (2) Web server name (3) IP address (4) URL
28. What is the result after evaluation of the expression $1+3*5-2$, considering the operator precedence of programming languages?
- (1) 10 (2) 12 (3) 14 (4) 18
29. Consider the following logical expressions P, Q and R:
- P : (A > B) OR (C > D)
Q : (A < B) AND (C > D)
R : NOT (A < B)

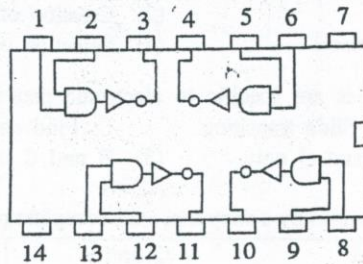
If above A, B, C and D contain the values 50, 40, 30 and 20 respectively, which of the following represents the correct outcomes of P, Q and R respectively?

- (1) True, False, False (2) True, False, True (3) True, True, False (4) True, True, True

[see page four



30. Consider the following integrated circuit (IC) chip:



Which of the following is correct regarding pins 1, 2 and 3 of the above chip?

- (1) If pin 1 = 0 and pin 2 = 0 then pin 3 will be 0.
 - (2) If pin 1 = 0 and pin 2 = 1 then pin 3 will be 0.
 - (3) If pin 1 = 1 and pin 2 = 0 then pin 3 will be 1.
 - (4) If pin 1 = 1 and pin 2 = 1 then pin 3 will be 1.
31. In a competition, participants have to complete two compulsory events A and B, and one of the two optional events C and D. Which of the following Boolean expressions correctly represents this situation?
- (1) (A AND B) AND (C OR D)
 - (2) (A AND B) AND (C AND D)
 - (3) (A OR B) AND (C OR D)
 - (4) (A OR B) OR (C AND D)
32. Consider the following statements:
- A - Functional requirements are the tasks expected to be performed using the system.
 - B - Efficiency and user-friendliness are examples of non-functional requirements.
 - C - The functional and non-functional requirements are identified during the systems analysis phase of the systems development life cycle (SDLC)
- Which of the above are correct?
- (1) A and B only
 - (2) A and C only
 - (3) B and C only
 - (4) All A, B and C
33. Suppose you have created an image file using a graphics software and saved it on the hard disk. If you want to give an **identical** copy of the file to a friend, what is the most appropriate method?
- (1) Ask your friend to create the image on his computer by looking at the printout of the image.
 - (2) Copy the file to a USB disk drive and give it to the friend.
 - (3) Give a printed hardcopy and ask the friend to get it scanned.
 - (4) Show the image on your monitor and ask him to take a photo of it using a digital camera.
34. Which of the following are correct regarding computer networks?
- A - Accessing shared resources may be difficult when the network is broken or congested.
 - B - Two or more computers must be **always** connected with a cable in creating a computer network.
 - C - Software can be centrally managed in a computer network.
- (1) A and B only
 - (2) A and C only
 - (3) B and C only
 - (4) All A, B and C
35. Which of the following statements are correct regarding the data transmission modes?
- A - Full duplex mode allows transmission of data in both directions at the same time.
 - B - Half duplex mode allows transmission of data in both directions at the same time.
 - C - Simplex mode allows transmission of data only in one direction.
- (1) A only
 - (2) B only
 - (3) A and C only
 - (4) B and C only
36. What is the expected outcome of the following pseudo-code segment?
- ```

n=9
while n>5
 n=n-2
end while
print n

```
- (1) 1
  - (2) 5
  - (3) 7
  - (4) 9

[see page five

37. Which of the following is used to create a link to another Webpage from an HTML document?  
 (1) HREF (2) LINK (3) LI (4) TARGET

38. Consider the following pseudo code segment:

```

if (mark>75)
 R=GOOD
else
 if (mark>50)
 R=AVERAGE
 else
 if (mark>35)
 R=PASS
 else
 R=FAIL
 endif
 endif
endif

```

If mark contains value 50, what will be the value assigned to R?

(1) AVERAGE (2) FAIL (3) GOOD (4) PASS

39. Consider the following statements:

- A - Computer virus is a software that has the ability to replicate by itself (self-copy) while being in a computer.
- B - Spam is unsolicited (unwanted) e-mail that is received by one's e-mail account.
- C - Spyware is capable of sending information such as passwords to others without a user's knowledge.

Which of the above are correct?

(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

40. Encryption can be used to

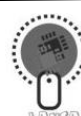
- A - protect business information from unauthorized access.
- B - efficiently use the bandwidth of an internet connection.
- C - preserve secrecy of information stored in databases.

Which of the above are correct?

(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

\*\*

[see page six



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ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව  
 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  
 இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்

**80 E I, II**

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙල) විභාගය, 2013 දෙසැම්බර්  
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2013 டிசெம்பர்  
 General Certificate of Education (Ord. Level) Examination, December 2013

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

**Information & Communication Technology II**

- \* Answer five questions only, including question No. 1 and four other questions.
- \* First question carries 20 marks and each of the other questions carries 10 marks.

1. (i) State whether the following statements labelled from A - E are true or false. You are only required to write down the label and your answer.
  - A - The Central Processing Unit (CPU) and main memory are located on the motherboard of a computer.
  - B - A computer program is a set of instructions for a computer to do a specific task.
  - C - When the power to the computer is switched off, the data in the hard disk is erased.
  - D - Increasing the memory capacity in a computer will generally increase its performance.
  - E - Liquid crystal technology can be used to produce computer monitors.
- (ii) Each item in Table A can be matched with an item in Table B. Write down the labels of the matching pairs on your answer script.

| Table A           |
|-------------------|
| I - Infrared      |
| J - Microwaves    |
| K - Optical fibre |
| L - Twisted pair  |

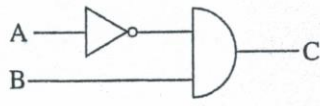
| Table B                                                                        |
|--------------------------------------------------------------------------------|
| P - Unguided media suitable for transmitting data over long distances.         |
| Q - Use copper wires to transmit data.                                         |
| R - Used in wireless remote controllers, wireless keyboards and wireless mice. |
| S - Use light signals in a glass tube to transmit data.                        |

- (iii) Consider the following terms/phrases labelled from A-E:
  - A - Email address
  - B - Internet Protocol (IP) address
  - C - Protocol
  - D - Web Browser
  - E - Web page

Write down the correct example for each labelled item using the list given below. You are only required to write down the label and the corresponding example.

List: [phitaz.anand@yahoo.com, Internet Explorer, lk, myinfo.html, 192.168.1.2, google, http, www]

- (iv) Consider the logic circuit and its corresponding truth table given below. Write down suitable Boolean values for labels (P), (Q), (R) and (S).



| A | B | C   |
|---|---|-----|
| 0 | 0 | (P) |
| 0 | 1 | (Q) |
| 1 | 0 | (R) |
| 1 | 1 | (S) |

- (v) Convert the binary number 10101010 into decimal.
- (vi) Write down the main purpose of an encoding scheme such as ASCII.

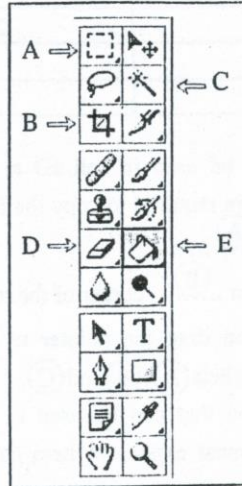
[see page seven]

(vii) Consider the following devices labelled from A-E:

- A - Barcode Reader
- B - CD writer
- C - Monitor
- D - Mouse
- E - Scanner

State whether each of the above devices is an input device, an output device or both. You are only required to write down the label and the answer.

(viii) The following shows the tool bar of a certain image editing software. Write down the function performed by each of the tools labelled as A-E.



(ix) Following is a pseudo-code to compute and print the average height of the students in a class, using the total number of students and the height of each student. Find the correct variables for blanks labelled (A)-(D) from the list given. You are only required to write the label and the variable name. Assume that variable N is used for the total number of students and H for the height of each student.

List: [avg, H, N, total]

```

begin
 total=0
 input N
 for (counter= 1 to (A))
 input (B)
 total= total+H
 next counter
 avg= (C) / N
 output (D)
end

```

(x) Write down an appropriate type of software for labels (A)-(D) in the following paragraph from the given list.

Nipuna's teacher asks him to compare rainfall patterns for 2011 and 2012. He uses a (A) to find the monthly rainfall data for 2011 and 2012 from the Web as he does not know in which Web site they are available. Then he enters that data into a (B), creates two line charts and also calculates total rainfall for each year. Later he makes a report using a (C) comparing rainfall patterns for 2011 and 2012. He also shows his findings to the class using a (D) software.

List: [database, presentation, search engine, spreadsheet, utility software, word processor]

[ see page eight

2. The following spreadsheet segment shows a bill for the items purchased by Akila from a stationary shop:

|    | A | B                     | C          | D        | E          |
|----|---|-----------------------|------------|----------|------------|
| 1  |   |                       |            |          |            |
| 2  |   | Item                  | Unit Price | Quantity | Value      |
| 3  |   | Blue Pen              | 15         | 2        | 30         |
| 4  |   | HB Pencil             | 10         | 3        | 30         |
| 5  |   | Eraser                | 5          | 2        | 10         |
| 6  |   | 40 page exercise book | 25         | 5        | 125        |
| 7  |   | File cover            | 50         | 0        | 0          |
| 8  |   | Book covers           | 20         | 5        | 100        |
| 9  |   | <b>Total</b>          |            |          | <b>295</b> |
| 10 |   |                       |            |          |            |

- (i) Write the correct formula that can be used in cell E3 to calculate the value of Blue Pens purchased.
- (ii) The following shows the steps that are required to copy the formula entered into cell E3 to cells E4 to E8:
  - Move the cellpointer to cell (A) . . . . .
  - Move the mouse pointer to bottom (B) corner of the cell till shape of the pointer changes to + symbol.
  - While pressing left mouse button drag the pointer to cell address (C) . . . . .
 Write down the correct terms for labels (A), (B) and (C).
- (iii) Write the single spreadsheet function that can be used in cell E9 to calculate total value of the bill.
- (iv) Write the function to find out the most expensive item based on the unit price given in column C of the spreadsheet.
- (v) Akila purchased two file covers. However, by a mistake the quantity was entered into cell D7 as 0 as shown in the above spreadsheet. Write the addresses of the cells in which values would be automatically updated if the correct quantity is entered into cell D7.

3. The school canteen sells a number of food items supplied by several suppliers. The canteen maintains a database with three tables to store the food items currently in stock, their suppliers and items purchased from the suppliers, as shown below.

| ItemID | IName        | Stock |
|--------|--------------|-------|
| 1001   | fish buns    | 15    |
| 1002   | tea buns     | 16    |
| 1003   | rolls        | 13    |
| 1004   | patties      | 11    |
| 1005   | fruit drinks | 19    |

Food Item Table

| SupplID | SName  | Phone      |
|---------|--------|------------|
| S001    | Saman  | 0334449226 |
| S002    | Meena  | 0221189151 |
| S003    | Niyasz | 0115707600 |
| S004    | John   | 0112908800 |

Supplier Table

| Date    | SupplID | ItemID | Count |
|---------|---------|--------|-------|
| 21/8/13 | S001    | 1003   | 25    |
| 15/9/13 | S003    | 1003   | 25    |
| 15/9/13 | S002    | 1001   | 30    |
| 15/9/13 | S004    | 1002   | 25    |
| 16/9/13 | S003    | 1004   | 25    |
| 16/9/13 | S001    | 1005   | 50    |

Purchase Table

- (i) List two primary keys with the corresponding table names.
- (ii) A student goes to the canteen and buys one fish bun and a fruit drink bottle.
  - (a) What table(s) need(s) updating?
  - (b) Write down the relevant updated record(s).
- (iii) The canteen decided to add cutlets as a new item and purchased 25 of them from the supplier Meena (SupplID: S002) on the date 20/9/13.
  - (a) What tables need updating?
  - (b) Write down new records that have to be added to relevant tables.

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4. (i) Consider the following statements labelled from A to G :
- A - The first page that is displayed when a Web site is accessed is called a .....
  - B - .....are used to link web pages.
  - C - ..... containing frames, tables etc. could be used to develop web pages.
  - D - A collection of web pages relating to a topic is generally called a .....
  - E - Software that are used to design, create and publish web sites are called .....
  - F - A .....can be used to view a web page created in HTML.
  - G - The ..... instruct the web browser on how to display a webpage.

Find the most appropriate term to fill the blank of each statement using the list given below. You are only required to write down the label and the correct term.

List: [Authoring Tools, Home Page, Hyper Links, Markup Tags, Templates, Web Browser, Web Server, Web Site]

- (ii) Consider the html source code and its corresponding output below. The source code has several missing tags indicated by ① to ⑤. Select the correct tags from list given below. You are only required to write down the label and the corresponding HTML tag.

List: [B, BR, H1, H2, H3, HEAD, HREF, IMG, LI, OL, P, TITLE, UL]

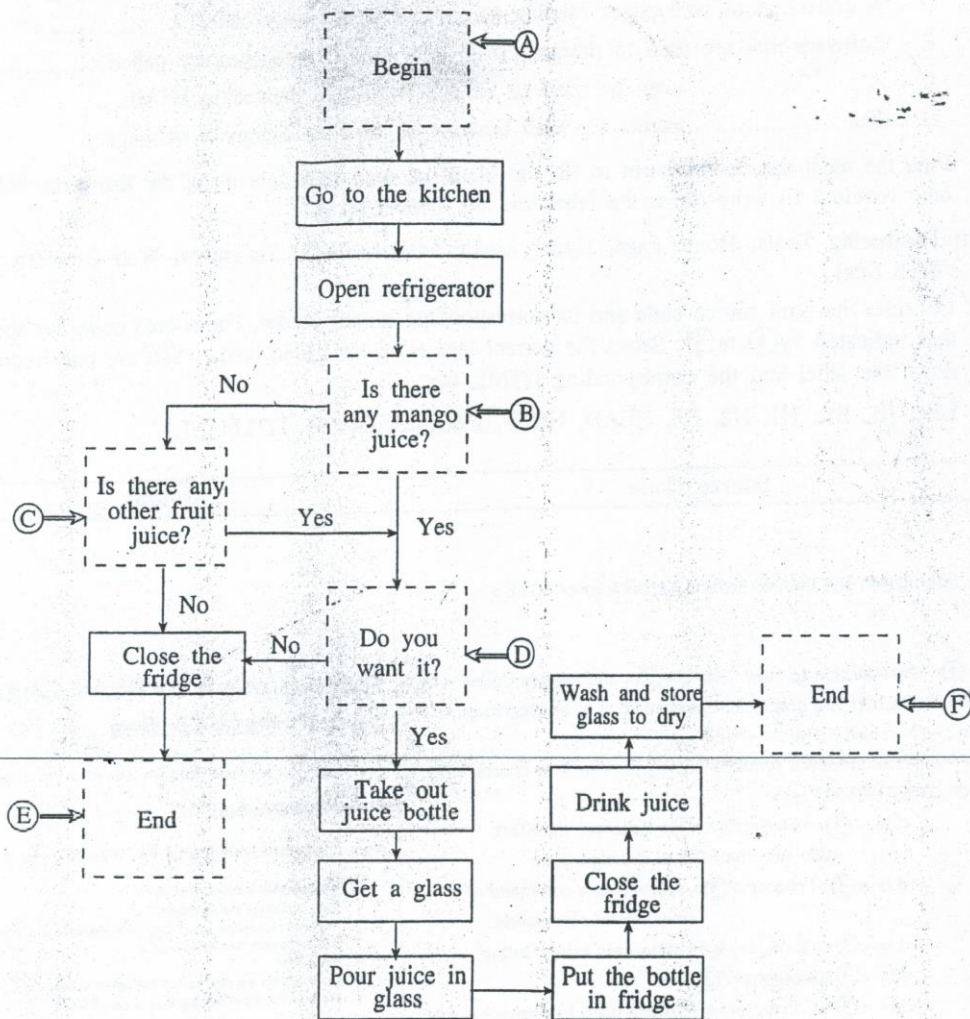
| Source Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre> &lt;HTML&gt; &lt;HEAD&gt; &lt; TITLE &gt; Information and Communication Technology&lt;/ TITLE &gt; &lt;HEAD&gt; &lt;BODY&gt;     &lt;①&gt; Introduction to Flow Charts &lt;②&gt; and Pseudo Codes &lt;/①&gt;     &lt;P&gt; Flow Chart is a graphical representation of an algorithm. &lt;/P&gt;     &lt;H2&gt; Flowchart Symbols &lt;/H2&gt;     &lt;P&gt; A set of standard symbols is used to draw flow charts. &lt;/P&gt;     &lt;OL TYPE=1 START =1&gt;         &lt;LI&gt; &lt;③&gt;Terminator&lt;/③&gt; indicates the Start             &lt;BR&gt; and the Stop of the algorithm.         &lt;LI&gt; &lt;③&gt;Process&lt;/③&gt; represents a command or a             sequence of commands.         &lt;LI&gt; &lt;③&gt;I/O&lt;/③&gt; represents data Input/Output.         &lt;LI&gt; &lt;③&gt;Decisions&lt;/③&gt;.         &lt;LI&gt; &lt;③&gt;Connectors&lt;/③&gt; are used to connect points             in flow chart.         &lt;LI&gt; &lt;③&gt;Flow Lines&lt;/③&gt; show the direction of data flow.     &lt;/OL&gt;     &lt;H2&gt; Pseudo codes &lt;/H2&gt;     Pseudo code is a high-level description of an         &lt;②&gt; algorithm for a computer.     &lt;H3&gt; example &lt;/H3&gt;     &lt;④ TYPE=CIRCLE&gt;         &lt;LI&gt; BEGIN         &lt;UL TYPE=CIRCLE&gt;             &lt;LI&gt; INPUT x, y             &lt;LI&gt; sum = x + y             &lt;LI&gt; OUTPUT sum         &lt;/UL&gt;         &lt;LI&gt; END     &lt;/④&gt;     &lt;H2&gt; Flow charting is Fun!&lt;/H2&gt;     &lt;⑤ SRC="smiley1.jpg"&gt; &lt;/BODY&gt; &lt;/HTML&gt;                 </pre> | <p style="text-align: center;"><b>Introduction to Flow Charts and Pseudo Codes</b></p> <p>Flow Chart is a graphical representation of an algorithm.</p> <p><b>Flowchart Symbols</b></p> <p>A set of standard symbols is used to draw flow charts.</p> <ol style="list-style-type: none"> <li>1. Terminator indicates the Start and the Stop of the algorithm.</li> <li>2. Process represents a command or a sequence of commands.</li> <li>3. I/O represents data Input/Output.</li> <li>4. Decisions.</li> <li>5. Connectors are used to connect points in flow chart.</li> <li>6. Flow Lines show the direction of data flow.</li> </ol> <p><b>Pseudo codes</b></p> <p>Pseudo code is a high-level description of an algorithm for a computer.</p> <p>example</p> <ul style="list-style-type: none"> <li>○ BEGIN</li> <li>○ INPUT x, y</li> <li>○ sum = x + y</li> <li>○ OUTPUT sum</li> <li>○ END</li> </ul> <p><b>Flow charting is Fun!</b></p>  |

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5. (i) Write down the main difference between a *compiler* and an *interpreter*.

(ii) Consider the following flowchart that shows the algorithm for drinking fruit juice stored in a refrigerator. Six symbols (labelled (A)-(F)) are missing in the flowchart. Write down the correct symbols for them. You are only required to write the labels and draw the correct symbols against them.



(iii) Draw the relevant flowchart segment to represent the following:

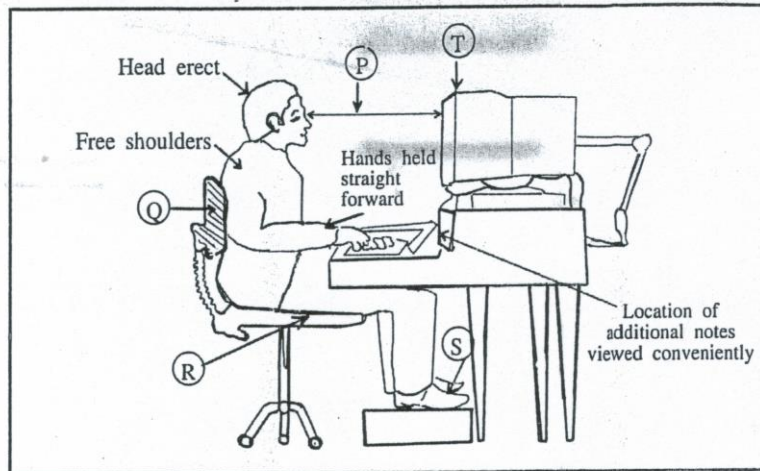
```

 Input temperature
 if temperature > 32 °C
 Output 'Hot'
 else
 if temperature > 20 °C
 Output 'Average'
 else
 Output 'Cold'
 endif
 endif

```

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6. (i) The following diagram shows the correct posture that can be adopted to avoid Repetitive Stress Injury (RSI) when using computers. Some of the aspects that need to be taken into consideration are noted and others have been labelled as (P) – (T).



Explain what precautions should be taken in relation to aspects labelled from (P) – (T).

- (ii) Briefly explain how information and communication technology is used in the following areas. Your answer should include one example for each.
- Tele medicine
  - Government to citizen services
- (iii) Assume that a new computer laboratory with internet connection has been provided to a school. Provide one suggestion that you would propose for each of the following to look after the laboratory.
- Improving physical security
  - Protection against malicious code
  - Improving logical security
7. (i) Nazeer was asked by his teacher to develop a computer based library information system for his school. He listed down the following activities labelled from P – U, in order to develop the library information system:
- P - Identify the objectives and requirements of the system
  - Q - Check the feasibility of developing a new library information system
  - R - Study the current manual system using different data collection techniques
  - S - Design a better system for the library to manage its activities
  - T - Write the computer program using a selected programming language
  - U - Test the program for errors and deploy (implement) the new library information system
- Write **two** types of feasibilities Nazeer should consider about the proposed library system.
  - Name the stage of the System Development Life Cycle (SDLC) indicated by activity with label R.
  - Write **two** data collection techniques that Nazeer could use to carry out the activity with label R.
  - Name the stage of the System Development Life Cycle indicated by activity with label T.
  - Write an activity Nazeer could do after completing the stage labelled as U.
- (ii) Traditionally organizations have used printed documents and telephones as media of communication. Presently, many organizations use email and other internet based services for communication.
- Write down **two** advantages of using email.
  - Write down **two** disadvantages of using email.
  - Write down **two** internet based methods other than email that organizations could use for communication.

\* \* \*