සියලු ම හිමිකම් ඇවිරිණි / முழுப் பதிப்புரிமையுடையது / All Rights Reserved]

නව නිර්දේශය/புதிய பாடத்திட்டம்/New Syllabus

15477

NEW

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

80 | E | I, II

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2017 දෙසැම්බර්
கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2017 டிசெம்பர்
General Certificate of Education (Ord. Level) Examination, December 2017

තොරතුරු හා සන්නිවේදන තාක්ෂණය	I, II
தகவல் தொடர்பாடல் 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* **1** *to* **40**, *pick one of the alternatives* (1), (2), (3), (4) *which is **correct** or **most appropriate**.*

(iii) ***Mark a cross*** (×) ***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. Which of the following decimal numbers is equivalent to the binary number 01011_2?
(1) 11 (2) 35 (3) 15 (4) 10

2. Which of the following octal numbers is equivalent to the binary number 111110110010_2?
(1) 7552_8 (2) 2667_8 (3) 2557_8 (4) 7662_8

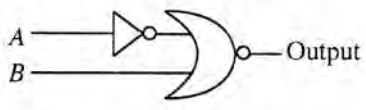
3. The hexadecimal equivalent of $1110101100011101 0_2$ is:
(1) $DD63A_{16}$ (2) $1D63A_{16}$ (3) $1D33A_{16}$ (4) $1D631_{16}$

4. Consider the following statements:
A - $2B_{16}$ is equivalent to 53_8
B - 43_{10} is equivalent to 101011_2
C - 101011_2 is equivalent to 53_8
Which of the above statements are true?
(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

5. Which of the following communication media uses the reflection of light to transmit data?
(1) Unshielded Twisted Pair (UTP) (2) Optical Fiber
(3) Coaxial cable (4) Shielded Twisted Pair (STP)

6. Some devices serve as either input or output devices only while others serve as both input and output devices. Which of the following serve as output devices only?
(1) Touch screen display and scanner (2) Printer and webcam
(3) Printer and speaker (4) Touch screen display and barcode reader

7. Which of the following truth tables is equivalent to the logic circuit given below?



A	B	Output
0	0	1
0	1	1
1	0	1
1	1	0

(1)

A	B	Output
0	0	0
0	1	0
1	0	1
1	1	0

(2)

A	B	Output
0	0	0
0	1	1
1	0	0
1	1	0

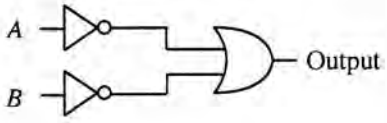
(3)

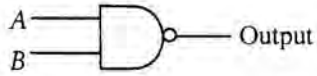
A	B	Output
0	0	0
0	1	1
1	0	1
1	1	0

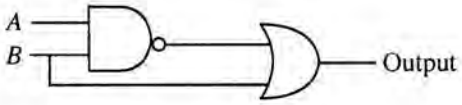
(4)

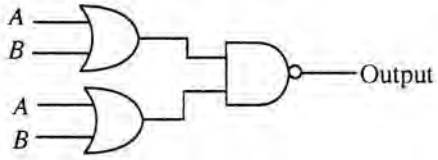
[see page two

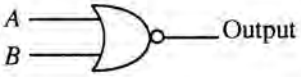
8. Which of the following logic circuits has a truth table equivalent to the truth table of the logic circuit shown on the right hand side?



(1) 

(2) 

(3) 

(4) 

9. Consider the following statements:

A - Managing the hardware
B - Providing User Interface
C - Providing Spreadsheet and Word Processing facilities

Which of the above are key services of an operating system?

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

10. Consider the following statements:

A - Register memory in a computer has a smaller capacity than that of a hard disk.
B - Data access speed of register memory is slower than the speed of a hard disk.
C - Per bit cost to store data in register memory is higher than the per bit cost to store data in a hard disk.

Which of the above statements are true?

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

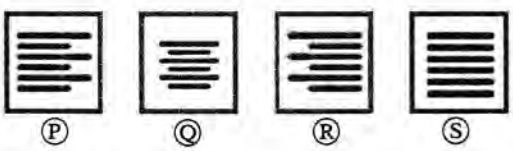
11. Consider the following statements:

A - Logging into a computer using a stolen user ID and password of another person
B - Downloading and installing a free and open source software without paying for a license
C - The manager of an online shop, selling a list of email addresses of his customers to a marketing company without the consent from the customers

Which of the above examples create ethical issues?

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

12. The following four icons labelled as Ⓟ, Ⓠ, Ⓡ and Ⓢ are commonly used in word processing software to align text in a document.



Ⓟ Ⓠ Ⓡ Ⓢ

Consider the following statements:

A - Ⓟ aligns text to left and Ⓡ aligns text to right

B - Ⓟ aligns text to left and Ⓢ aligns text only to right

C - Ⓠ aligns text to centre and Ⓢ justifies text

Which of the above statements are true?

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

13. Consider the following statements regarding tasks carried out on a spreadsheet file in a folder by a right handed user:

A - Place the mouse pointer on the file and single click the right button of the mouse
B - Place the mouse pointer on the file and double-click the right button of the mouse
C - Place the mouse pointer on the file and double-click the left button of the mouse

Which of the above result/s in opening the spreadsheet file?

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

[see page three

14. Consider the following statements related to the use of short-cut keys in commonly used word processing softwares:

A - Ctrl + C is used to copy text/objects
B - Ctrl + A is used to select all text/objects in a document
C - Ctrl + V is used to paste text/objects already copied

Which of the above statements are correct?

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

15. What would be the number displayed, if formula =2^3+(5-3)*6/4 is entered in a cell of a spreadsheet?

(1) 5 (2) 8.5 (3) 11 (4) -1.25

● Questions **16** and **17** are based on the given spreadsheet and information given below.

* Circumference of a circle can be calculated with the formula $2\pi r$, where r is the radius of the circle.
* Assume that the value of π is given in cell C2.

	A	B	C
1	Radius	Circumference	π
2	20	125.6637061	3.14159
3	21	131.9468915	
4	25	157.0796327	
5	22	138.2300768	
6			

16. What formula should be entered into cell B2 to calculate the circumference of the circle?

(1) =2*C2*A2 (2) =2*$C2^$A2 (3) =2*C2^A2 (4) =2^C2^A2

17. Which of the following will appear in cell A6 if the formula =SUM(A2:A5)/COUNT(A2:A5) is entered in cell A6?

(1) 1 (2) 17.6 (3) 22 (4) 88

18. Consider the following statements relating to a slide with multiple objects, created using a presentation software:

A - The *animation effects* can be applied to multiple objects on a given slide
B - The *slide transition* can be applied to the whole slide only
C - The *slide transition effect* appears when slides change from one to the next during the *slide show view*

Which of the above statements are correct?

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

● Questions **19** to **22** are based on the following database tables that are used to store student subject marks.

Student Table

DoB	Name	Student_No	Class
20/11/95	Sarath	1001	1A
17/12/95	Kolitha	1002	1A
21/10/95	Kapila	1003	1A
18/12/95	Nalin	1004	1B

Subject Table

Sub_Code	Subject
01	Sinhala
02	Art
03	English

Marks Table

Sub_Code	Student_No	Marks
01	1001	85
02	1001	80
01	1002	65
03	1003	70

19. How many fields are in the Subjects table?

(1) 2 (2) 3 (3) 4 (4) 6

20. What would be the most suitable field as the primary key for the Student Table?

(1) Student_No (2) DoB (3) Name (4) Class

21. What would be an example for a foreign key in the database?

(1) Sub_Code in Subject Table (2) Sub_Code in Marks Table
(3) Marks in Marks Table (4) DoB in Student Table

22. How many marks did Kapila obtain for English?

(1) 65 (2) 70 (3) 80 (4) 85

[see page four

23. Consider the following statements related to database software:

A - A collection of fields related to one object is called a record

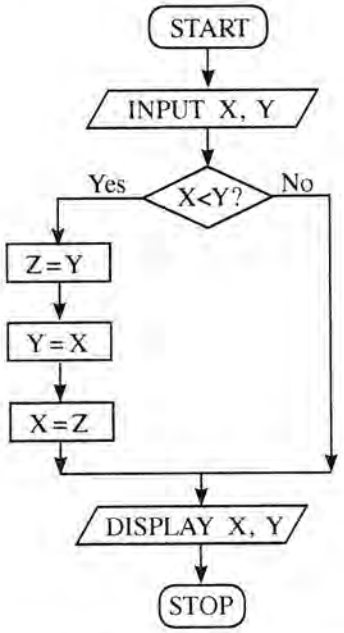
B - A collection of related tables is called a database

C - A Foreign key of one table is the primary key of another table

Which of the above statements are correct?

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

24. Consider the algorithm in the following flowchart:



What values will be displayed for X and Y respectively, if the inputs are $X = 10$ and $Y = 20$ for the given flowchart?

(1) 10, 10 (2) 10, 20 (3) 20, 10 (4) 20, 20

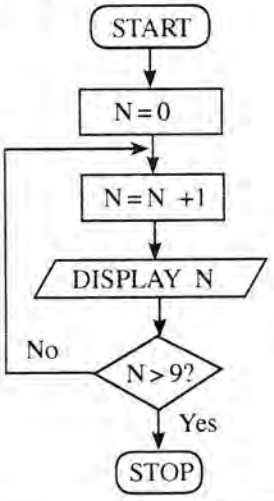
25. Consider the following pseudocode with label Ⓟ to find the product of numbers from 1 to 10.

```
product = 1
number = 0
repeat
      number = number + 1
      product = product * number
until Ⓟ
```

Which of the following expressions is correct for label Ⓟ?

(1) *number* > 10 (2) *number* < 10 (3) *number* >= 10 (4) *number* <= 10

26. Which of the following pseudocode segments is equivalent to the logic of the algorithm given in the flowchart?



(1)
```
N=1
while N<=10
  N=N+1
  display N
end while
```

(2)
```
for N=0 to 10 do
    display N
```

(3)
```
N=0
while N<=10
  display N
  N=N+1
end while
```

(4)
```
for N=1 to 10 do
    display N
```

[see page five

27. Consider the following pseudocode:

```
X = 0
do
   display ' * '
   X = X + 2
while X < 5
```

As the output of the above pseudocode, how many times the ' * ' will be displayed?

(1) 2 (2) 4 (3) 5 (4) 6

28. Consider the following pseudocode:

```
if average>70 then
    if Sport_colour = 'True' then
        Allrounder_award = 'True'
    end if
end if
```

Which of the following is equivalent to the logic of the above pseudocode?

(1) if average>70 AND Sport_colour = 'True' then Allrounder_award = 'True'
(2) if average>70 OR Sport_colour = 'True' then Allrounder_award = 'True'
(3) if average>70 then Allrounder_award = 'True'
(4) if Sport_colour = 'True' then Allrounder_award = 'True'

● Use the following paragraph to answer questions **29** and **30**.

Currently users of a school library can reserve a book by filling a form. The library informs the user by sending a letter when the book is available. Sometimes, the library informs the wrong users by mistake. The librarian is planning to introduce a new information system to replace the current manual system. With the new system a user can reserve a book online. The system sends an email to the user when the book reserved is available to borrow. The librarian suggested that both manual system and the new system to operate till they make sure that the new system works without any problem.

29. Consider the following statements related to the librarian's proposal:

A - The new system will improve efficiency of the reservation process
B - The new system will improve accuracy of the reservation process
C - The new system will have a negative impact on users who cannot get access to the Internet

Which of the above statements are valid?

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

30. Which of the following is the proposed deployment approach for the above Information System?

(1) Parallel (2) Phased (3) Direct (4) Both parallel and direct

31. Consider the URL "http://www.doenets.lk/exam/". The "doenets.lk" is called,

(1) Domain Name.
(2) Hypertext Transfer Protocol.
(3) Path where the resource is located.
(4) Resource.

32. Which of the following can be used to find a piece of information on a website when the relevant URL is not known?

(1) Search engine
(2) File Transfer Protocol (FTP)
(3) Email server
(4) Domain Name Server

[see page six

33. Consider the following segment of an email sent to Ajith and three others:

To	ajith@doe.lk
CC	rizvi@nie.lk, kumar@school.net
BCC	frank@nie.lk
Subject	Examination Results

If you send the email to ajith@doe.lk as given above, who are the recipients that Ajith will see as having received this email?

(1) only ajith@doe.lk
(2) only ajith@doe.lk, rizvi@nie.lk and kumar@school.net
(3) ajith@doe.lk, rizvi@nie.lk, kumar@school.net and frank@nie.lk
(4) only ajith@doe.lk and frank@nie.lk

34. Which of the following in HTML, can be used to provide substitude information for an image if a user cannot view the image due to slow internet connection?
(1) src (2) href (3) alt (4) img

35. What is the correct HTML code segment for creating the hyperlink, 'Ministry of Education' for http://www.moe.gov.lk?
(1) <a>http:// www.moe.gov.lk
(2) Ministry of Education
(3) Ministry of Education
(4) Ministry of Education

36. Which of the following HTML tags can be used to make a numbered list in HTML?
(1) (2) <dl> (3) (4) <list>

37. Consider the following scenarios:
A - Obtaining a copy of an original birth certificate online
B - Paying water bills online using the website of the National Water Supply and Drainage Board
C - Obtaining the revenue license for a vehicle online
Which of the above are e-government related services?
(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

38. Consider the following statements:
A - Uninterrupted power supply (UPS)
B - Software firewall
C - Use of user name and password to log into a computer
Which of the above are examples for logical security?
(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

39. Which of the following is/are (an) example/s of safe use of Internet?
A - Hiding personal information such as telephone numbers and addresses on social media
B - Clicking on links in emails that come from unknown persons
C - Communication with strangers on social media
(1) A only (2) B only (3) C only (4) A and C only

40. Consider the following statements:
A - Careless disposal of electronic waste into the environment.
B - Handing over unusable Compact Fluorescent Light (CFL) bulbs and other electronic devices to recycling centres
C - Sell or donate working electronic devices to others without discarding them
Which of the above are examples for safe e-waste disposal?
(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

* *

[see page seven

සියලු ම හිමිකම් ඇවිරිණි / முழுப் பதிப்புரிமையுடையது / All Rights Reserved]

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නව නිර්දේශය/புதிய பாடத்திட்டம்/New Syllabus

NEW

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

80 | E | I, II

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2017 දෙසැම්බර්
கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2017 டிசெம்பர்
General Certificate of Education (Ord. Level) Examination, December 2017

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

Information & Communication Technology II

Note :

* *Answer **five (05)** questions only, including the **first question** and **four** others.*
* *First question carries **20** marks and each of the other questions carries **10** marks.*

1. (i) (a) Convert the binary number 1101110011100_2 to Octal. Show steps in your calculation.

(b) Convert hexadecimal number 752_{16} to binary. Show steps in your calculation.

(ii) A flashlight with motion and light sensors is located outside a front door of a building. The light turns 'on' automatically when it is dark and when someone approaches the door from outside (when both conditions are satisfied). The motion sensor turns from OFF (0) to ON (1) when someone comes near the door. The light sensor is ON (1) when there is light and OFF (0) when it is dark.
The block diagram of the circuit *Figure 1* relating to this scenario is shown below.

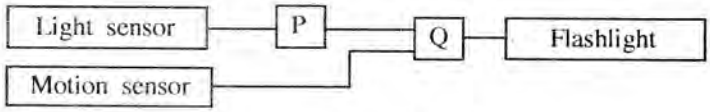


Figure 1 - Logic Circuit

(a) What are the suitable logic gates for P and Q in the above circuit?

The above circuit is modified by adding an OR gate and a switch [ON (1), OFF (0)] as shown below in *Figure 2*

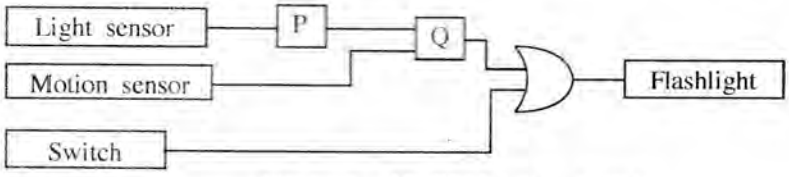


Figure 2 - Modified Logic Circuit

(b) Identify which of the **two** in the following statements are correct regarding the modified circuit given in *Figure 2*. Write down the relevant statement numbers.

① - When switch is **ON** (1) the flashlight will always be on.

② - When switch is **OFF** (0) this circuit behaves as the circuit in *Figure 1*.

③ - The behaviour of two circuits are identical.

(iii) Assume that 4 bits per pixel are used to represent a colour in a colour representation system. How many colours different from each other can be represented in this system?

(iv) Sama goes to a bookshop to buy 3 exercise books and 2 pens. After finding the items, she takes them to the counter where the sales assistant scans the bar code stickers attached to each item into the information system in the shop. Quantities of each item are also entered into the system. The system calculates the cost for each item and the total cost of all the items. Then the system prints the bill for the transaction.

Write down **one** example each for input, process and output of the information system.

[see page eight

(v) The following ports labelled Ⓐ - Ⓔ are found in a computer.



Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

Write down the relevant label of the port related to the following questions:

(a) Which port can be used to access Internet using a network (UTP) cable?

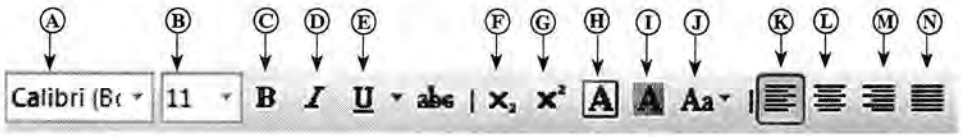
(b) What port can be used to connect a digital camera to copy photos into the computer?

(vi) The document given below was created using a Word Processing software and it was formatted as indicated by labels ① to ④. Assume that the font size of the document has not been changed.

Before formatting	After formatting
Covalent Bonds	Covalent Bonds ← ① and ②
Electron sharing between atoms is another method of forming bonds among them. By sharing of electrons like this, the atoms acquire the noble gas configuration. Joining of atoms by sharing electrons between a pair of atoms is referred to as a covalent bond.	Electron sharing between atoms is another method of forming bonds among them. By sharing of electrons like this, the atoms acquire the noble gas configuration. Joining of atoms by sharing electrons between a pair of atoms is referred to as a covalent bond. ③
Sharing of electrons between atoms of the same kind gives rise to homoatomic molecules. e.g. hydrogen (H2), fluorine (F2), oxygen (O2), nitrogen (N2)	Sharing of electrons between atoms of the same kind gives rise to homoatomic molecules. e.g. hydrogen (H_2), fluorine (F_2), oxygen (O_2), nitrogen (N_2) ④

(Source: Science text book-grade 10, p174)

Some formatting tools available in Word processing software are shown below with labels Ⓐ - Ⓝ.



Identify the tool used for each of the formatting tasks indicated by the labels ① to ④. Write down the number assigned to the formatting tasks ① - ④ and the relevant label of the tool.
Note: No marks will be awarded if more formatting tools than necessary are given in your answer.

(vii) Determine whether the following statements are **True** or **False**. Write down the statement number and whether the statement is **True** or **False**.

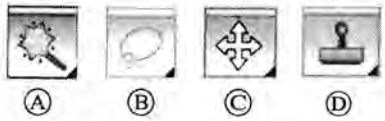
① - Internet Protocol (IP) address is used to uniquely identify a computer on the Internet.

② - File Transfer Protocol (FTP) is used to transfer files between remote computers.

③ - Hypertext Transfer Protocol (HTTP) is used to exchange html documents.

④ - Files and folders in a cloud computing environment can be accessed without an Internet connection.

(viii) Some icons used in graphic design software are labelled as Ⓐ - Ⓓ.



Ⓐ Ⓑ Ⓒ Ⓓ

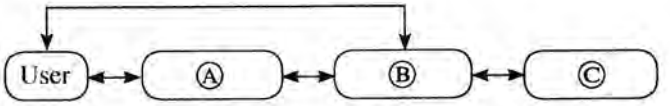
Identify the correct name for each tool from the list given below. Write down the tool name against labels Ⓐ - Ⓓ.

List: {crop tool, lasso tool, hand tool, brush tool, clone stamp tool, magic wand tool, move tool}

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(ix) The following diagram shows the interaction between a user and a computer system. Identify matching terms for labels Ⓐ, Ⓑ and Ⓒ in the diagram from the following list. Write down the label and corresponding term.

List: |Hardware, Application software, Operating system software, Liveware|



(x) Assume that a dice was thrown 10 times and the 10 values obtained are stored in an array named *A*. The following algorithm with missing terms Ⓟ, Ⓠ and Ⓡ is used to calculate how many times number 5 was obtained.

```
count = 0
i = 0
while i < Ⓟ
    if A|Ⓠ| = 5 then
        Ⓡ = count + 1
    end if
    i = i + 1
end while
display count
```

Index of array	0	1	2	3	4	5	6	7	8	9
A	1	3	5	3	2	1	5	4	6	1

Write the correct terms for labels Ⓟ, Ⓠ and Ⓡ in the above algorithm.

2. (i) Consider following statements ① - ④ regarding ICT related security issues.

① - A malware program that replicates itself to spread to other computers.

② - Unsolicited (unwanted) email received into the inbox of an email software.

③ - Pretending to be a trustworthy communication, attempting to obtain someone's username and password of a bank account.

④ - Display unwanted promotional material in the form of pop-ups in a webpage.

Identify the matching terms from the list given below for each of the statements ① - ④. Write down the statement number and the relevant term from the list.

List: | Adware, Spam, Phishing, Bots, Computer worm, Firewall |

(ii) The diagram shows how a person works on his computer.
Write **two** health related issues that he may face due to the posture.



(iii) Consider the following scenarios labelled ① - ③.

① - A person copying licensed software downloaded from Internet and selling to others.

② - A person logging into a social media account using a stolen user name and a password.

③ - A farmer in one country uses agricultural information on web, while a farmer in another country is unable to use such information as he does not know how to use computers and does not have access to Internet.

Identify the suitable terms from the list given below for each of the above scenarios and write down the relevant term against the labels ① - ③.

List: | Piracy, Cyber crime, Digital divide, Privacy, Electronic business |

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3. (i) Consider the following figure which shows HTML source file with missing tags and parameters labelled ❶-❽ on the left and its **output** on the right.

HTML source

```
<!DOCTYPE html>
<html>
<body>
<h2><❶> Milk Rice </❶></h2>
<❷ src="milkrice.jpg" alt="Milk Rice">
<p align ="❸"> "<❹>Kiribath</❹> is a traditional dish
    which is fit for any auspicious moment. Kiribath also
    known as milk rice is normally served with "lunu
    miris", a mixture of red onions and spices as well as
    with bananas, jaggery & curries. It's a must have for
    <❺>New Year</❺> celebrations & a popular breakfast
    dish too." </p>
<❻>
<li>3 Cups of Long grain rice (short grain or white rice)</li>
<li>3 Cups of Coconut milk (thick)</li>
<li>4 <❼>1</❼>/<❽>2</❽> Cups of Water</li>
<li> <❼>3</❼>/<❽>4</❽> Teaspoons of Salt </li>
</❻>
</body>
</html>
```

Output

Milk Rice



"*Kiribath* is a traditional dish which is fit for any auspicious moment. Kiribath also known as milk rice is normally served with "lunu miris", a mixture of red onions and spices as well as with bananas, jaggery & curries. It's a must have **New Year** celebrations & a popular breakfast dish too."

- 3 Cups of Long grain rice (short grain or white rice)
- 3 Cups of Coconut milk (thick)
- 4 ½ Cups of Water
- ¾ Teaspoons of Salt

Select the correct tag or parameter from the following list for labels numbered ❶-❽ in the HTML source code above and write them down against each number.

List: |center, b, br, em, img, justify, i, ol, s, sup, sub, p, tr, td, marquee, u, ul|

(ii) Determine whether the following statements are **TRUE** or **FALSE**.

① Number of pixels can be reduced by removing unnecessary sections in edge of images using Crop/Trim tool in graphics software.

② Size of video files can be reduced by making the frame size smaller and reducing the resolution of image in a frame.

③ The size of audio files can be compressed by decreasing the sampling rate.

Write down statement labels ① - ③ and write whether the above statements are **TRUE** or **FALSE**.

4. The following spreadsheet segment shows CO_2 emission (kt) of some Asian countries in the years 1972 and 2014.

	A	B	C	D	E
1	**CO_2 Emission (kt) of some Asian countries**				
2 3	**Country Name**	**1972**	**2014**	**Difference**	**Percentage**
4	Bangladesh	3509.319	73189.653		
5	Bhutan	3.667	1001.091		
6	China	931575.681	10291926.9		
7	India	217849.136	2238377.14		
8	Japan	853373.239	1214048.36		
9	Sri Lanka	3542.322	18393.672		
10	Maldives	3.667	1334.788		
11	**Total CO_2 Emission (kt)**				

(*source: World Development Indicators*)

(i) Write down the formula that should be written in cell D4 to find the difference of CO_2 emission between years 2014 and 1972 in Bangladesh.

| Difference = Value of year 2014 - Value of year 1972 |

(ii) Write down the formula that should be written in cell E4 to calculate the percentage increase of CO_2 emission from 1972 to 2014 for Bangladesh.

| Percentage Increase = (Difference/Value of year 1972) × 100 |

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(iii) Assume that the two formulae entered to cells D4 and E4 are copied to the cell range D5:E10. Write down respectively the **two** formulae displayed in cell D9 and E9 that are related to Sri Lanka.

(iv) A formula in the form of *=function1(cell1:cell2)* is written in cell B11 to calculate the total CO_2 emission in all countries in 1972. Write down the relevant terms for *function1*, *cell1* and *cell2*.

(v) Name the most suitable chart type in spreadsheet software to show the CO_2 emission of given countries in 1972 and 2014.

5. Assume that the following database tables are used to calculate the electricity bills. The same rate is used to complete the bill of a given customer.

Customer_Data Table

Name	Acc_No	Type
A.B. Silva	1001	R
V. Balasingham	1002	C
S.S. Gamage	1003	R
R.T. Alles	1004	C

Rate Table

Type	Rate
R	10.50
C	18.50

Usage Table

Month	Acc_No	Units
January	1001	185
February	1001	280
January	1002	165
May	1003	270

(i) Write **two** primary keys and their corresponding tables.

(ii) Write **two** foreign keys and their corresponding tables.

(iii) What would be the most suitable table in the database to add the field *customer_address*?

(iv) What tables should be updated if a new customer called *A.B.C Navaz* of type *R* has used 120 units for the month of April?

(v) Write down the updated rows and their respective table names for the updates given (iv) above. (Assume that Acc_No is 1005.)

(vi) What tables should be joined to run a query to find out the total bill for *A.B. Silva* for January?

6. (i) Consider the following scenario related to the development of a library information system.

The librarian proposed to introduce a new computerized information system to manage its operations. **Anwar** identified the requirements of the proposed system. Then he designed a system that satisfies the requirements. Based on the design made by **Anwar**, **Malani** developed the software. **Krishna** tested the software. **Saman** installed the system in the library. A few months later, **Malani** fixed problems in the new system and modified the software to print two additional reports.

(a) Who is involved in the coding (implementation) phase of systems development life cycle?

(b) Which phase of the systems development life cycle was carried out by Saman?

(c) Which phase of the systems development life cycle was carried out by Krishna?

(d) Write **two** different methods that Anwar can use to understand the requirements of the proposed system.

(e) Anwar assessed whether the new system is able to run with the available computers in the library. What feasibility was assessed in this scenario?

(ii) The following steps A-F show the process of visiting the 'http://www.nie.lk' web page by a user.

A - Request to translate www.nie.lk domain name to the IP address is sent to the DNS (Domain Name Server)

B - DNS returns the IP address 222.165.180.150

C - Web browser renders the HTML web page

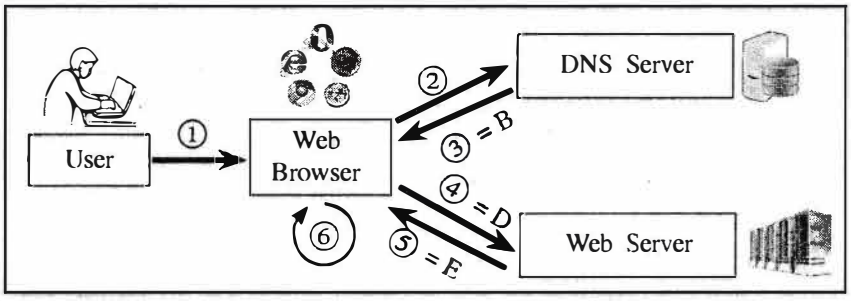
D - Web browser sends a 'http Get' request to the webserver with the IP address 222.165.180.150

E - Webserver with IP address 222.165.180.150 returns the html data stream

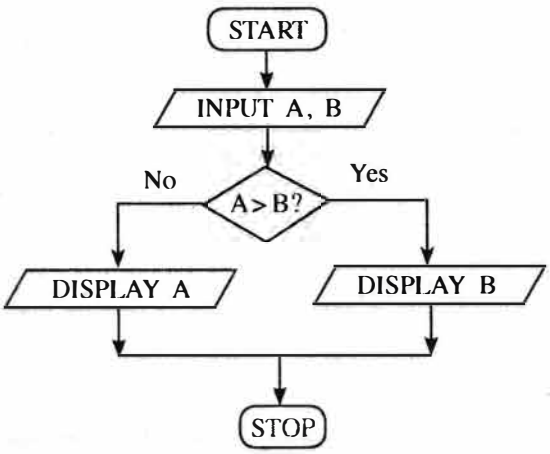
F - User opens the web browser and enters 'http://www.nie.lk'

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The following diagram shows the process related to the above list of steps. The labels ③, ④ and ⑤ are matched with steps B, D and E respectively. Match the remaining steps with the labels ①, ② and ⑥ in the diagram in the correct order. Write down the label and the corresponding step.

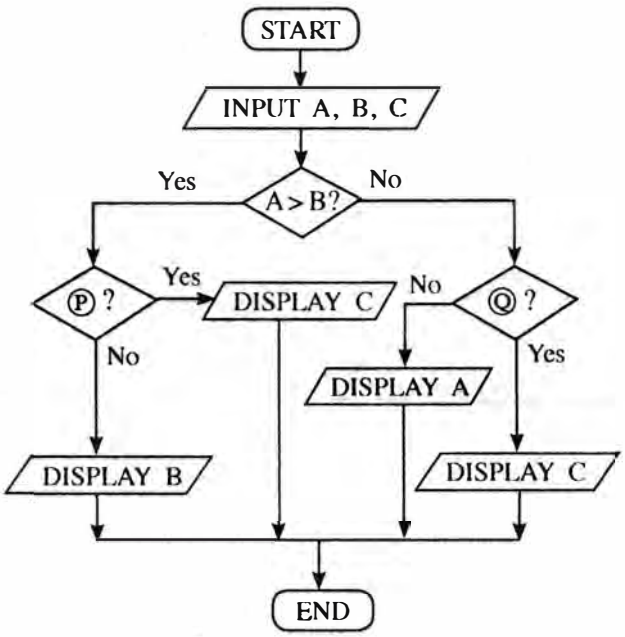


7. (i) The following flowchart shows an algorithm that reads two numbers and display the smaller number.



Write the pseudocode for the algorithm in the flowchart given above.

(ii) The following flowchart reads three numbers and finds the smallest. Write down the correct expressions for missing labels Ⓟ and Ⓠ.



* * *