LYCEUM
INTERNATIONAL SCHOOLS

55

First Examination - October 2019

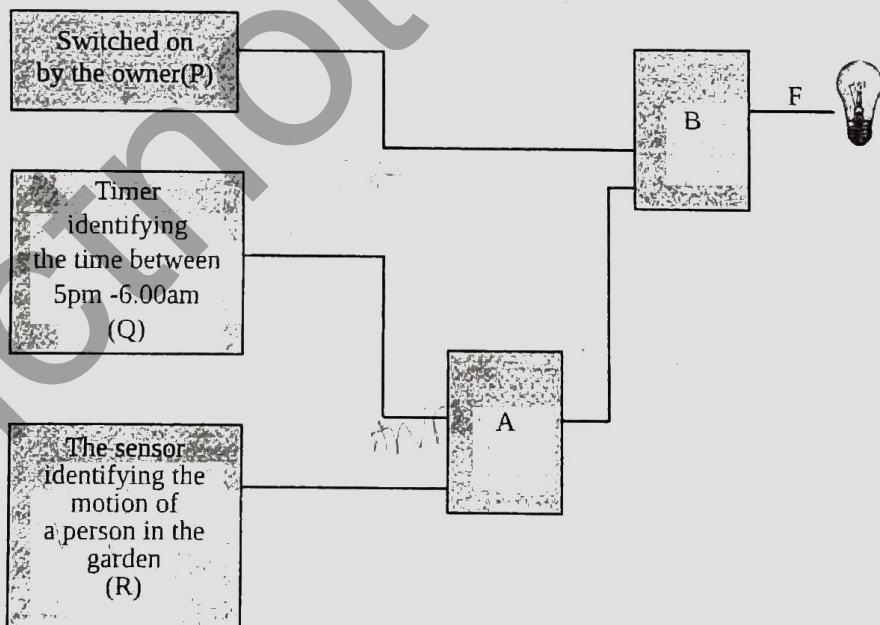|		
Subject	:	**Information and Communication Technology - II** 80 E II
Class	:	10X (National)...B....
Duration	:	2 hours Date : 2019|11|01
Candidate's name	:	Shezmeena usman Admission no : 6101795

Note :

- Answer <u>five</u> questions only, including the <u>first</u> question and <u>four</u> other questions.
- First question carries 20 marks and each of the other questions carries 10 marks.

Section A

1. (a)

   (i)   Convert the binary number 100111111 to Decimal. Show steps in your calculation.

   (ii) Convert hexadecimal number $11ED_{16}$ to Octal. Show steps in your calculation.

   b)   The following logic circuit is designed for a home security system. Garden bulbs should be lit if switched on by the owner or automatically, if an unauthorized person enters between 5 pm to 6 am.

   a)   Draw suitable logic gates for A and B.

   b)   Write the corresponding Boolean expression and truth table for the above scenario.
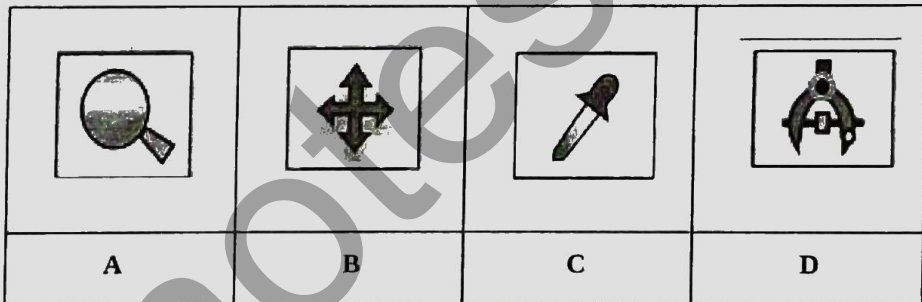
c) Complete the following table.

i. Write **one** example for each cell.

Generation	Major hardware technology	Software used	Systems invented
Third Generation 1964-1975	----------------------	----------------------	----------------------
Second Generation Computers 1956-1963	----------------------	----------------------	----------------------

ii. What is the purpose of a LMS? List **two** activities of a LMS.

d) i. List **four** basic elements of digital graphics.

ii. Assume that 10 bits per pixel are used to represent a colour in a colour representation system. How many different colours can be represented in this system?

e) i. Some icons used in a graphics design software are labeled as A-D.
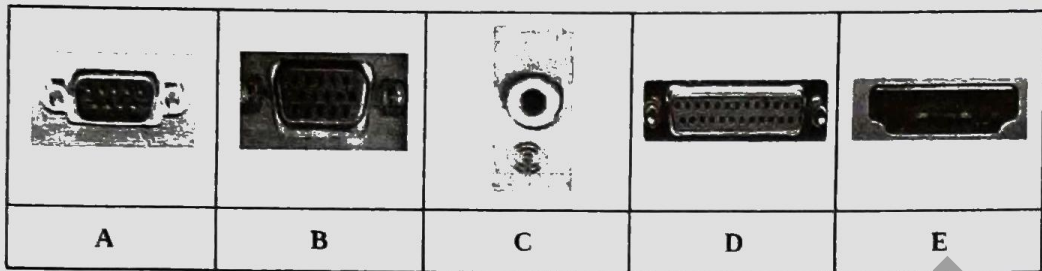

A	B	C	D

Write down the tool names against labels A-D.

ii. List the differences between raster graphics and vector graphics with respect to the following key points. (Quality of graphics, Computer speed in cration)

f) i. Fill in the blanks of the following sentences using the suitable term from the list given at the bottom.

a) ....can be used to link web resources.

b) There is a .... for every web site.

c) HTML tags are coded using a ....

d) Multiple web sites belonging to different institutes can be hosted in a ....

List [Home page, hyperlinks, tags, text editor, web server]

ii.   The following ports label A-E are found in a computer.

A	B	C	D	E

Write down the relevant label of the port related to the following questions:
1.   Which port can be used to connect a headphone?
2.   Which port can be used to connect a printer to get a printout?
3.   Which port can be used to connect a modem?
4.   Which port(s) can be used to connect a monitor?

g) The document given below was created using a word processing software and it was formatted as indicated by labels A to G. Identify the tool used for each of the formatting tasks indicated by the labels A to G.

Before formatting	After Formatting
Dengue Fever Dengue (pronounced DENgee) fever is a painful, debilitating mosquito-borne disease caused by any one of four closely related dengue viruses. These viruses are related to the viruses that cause West Nile infection and yellow fever. An estimated 400 million dengue infections occur worldwide each year, with about 96 million resulting in illness. Most cases occur in tropical areas of the world, with the greatest risk occurring in: The Indian subcontinent, Southeast Asia, Southern, China, Taiwan, The Pacific Islands, The Caribbean (except Cuba and the Cayman Islands), The Caribbean (except Cuba and the Cayman Islands), Mexico, Africa Central and South America. (except Chile, Paraguay, and Argentina) Dengue fever	**Dengue Fever** — Ⓐ Ⓑ Dengue (pronounced DENgee) fever is a painful, debilitating mosquito-borne disease caused by any one of four closely related dengue viruses. **These viruses are related to the viruses that cause West Nile infection and yellow fever.** An estimated 400 million dengue infections occur *worldwide each year*, with about 96 million resulting in illness. Ⓓ Most cases occur in tropical areas of the world, with the greatest risk occurring in: — Ⓖ 1. The Indian subcontinent 2. Southeast Asia 3. Southern China 4. Taiwan 5. The Pacific Islands 6. The Caribbean (except Cuba and the Cayman Islands) 7. Mexico 8. Africa 9. Central and South America (except Chile, Paraguay, and Argentina) — Ⓕ Dengue Fever — Ⓔ

h) i) List **two** types of programming paradigms with **two** examples.

    ii) Consider dog is a class and identify its properties and methods, in object oriented programming.

i) Draw a flow chart for the following pseudo code.

```
BEGIN
    GET basic_Salary
    IF Basic_Salary <=30000 THEN
        CALCULATE Allowance =Basic_Salary*5%
    ENDIF
    CALCULATE Gross_Salary =Basic_Salary +Allowance
    DISPLAY Gross_Salary
END
```

j) A wholesale dealer holds supplier and item details on a database

Suppliers table

Supp_ID	Name	Contact
S001	Martin	77123456
S002	Steven	77456789
S003	Moris	77142536

Supplying Table

Supp_ID	Item_ID	Supplied Date
S001	G001	01/05/19
S002	G002	05/08/19
S003	G003	08/05/19
S001	G003	15/09/19

Item table

Item_ID	Item	Unit Price
G001	Pen gell	20
G002	lunch Box	21
G003	Book 80 pages	200
G004	CR Book 60 pages	160

i) Allen is newly registered for supply and he supplied CR books (300 pages) which cost Rs:500/- each on 12/07/2019. His contact number is 077748596.

    a) Which tables/table would be updated?

    b) Write the updated record with field names for each table.

ii) State the relationships between the following tables.

    a) Supplier table – Supplying table

2. Given below is a part of a spreadsheet which contains the term test marks of students in grade 11 of Mahanama Central College.

	A	B	C	D	E	F	G	H	I	J	K
1											
2				Mark Sheet Grade 11							
3											
4	Name	Sinhala	Science	Math	ICT	English	History	Art	Total	Avg	New Avg
5	Amal	85	78	45	74	85	45	65	477	68.14286	78.14285714
6	Piyal	56	89	56	85	96	96	68	546	78	88
7	Kamal	89	96	12	96	74	78	67	512	73.14286	83.14285714
8	Namal	78	85	63	96	45	41	98	506	72.28571	82.28571429
9	Lakmal	74	74	96	52	56	52	85	489	69.85714	79.85714286
10	Sunil	96	41	78	85	78	63	36	477	68.14286	78.14285714
11											
38	Maduka	45	36	78	45	78	45	78	405	57.85714	67.85714286
39	Nalin	56	25	96	63	85	12	96	433	61.85714	71.85714286
40	Saman	23	14	78	12	96	23	45	291	41.57143	51.57142857
42	Highest Mark										
43	Lowest Mark										
44	Total number of students										
45	Extra marks								10		

a) Name the cell range and the tool used to make the cell containing the title, Mark Sheet Grade 11.

b) Write the formula or function to calculate the total marks of Amal.

c) What is the method you can use to calculate the total marks of other students using the above formula? Write the steps.

d) Using a function, write the formula to calculate the average marks of Amal in cell J5.

e) Write down the functions in cell C42 and cell C43 to find the highest and lowest marks of the students.

f) What would be the function in cell G42 to find the highest marks for history?

g) Write down the function for cell B44 to calculate the total number of students who sat for the exam.

h) Due to a difference in current marks the teacher has decided to add 10 marks to the average marks of all students.(additional marks is given in H45). Marks are calculated by adding 10 extra marks to the average for all the students. Write down the formula in K5 to find out the new average marks of Amal by using only cell addresses. This formula will be copied to calculate the other students' new averages.

i) List **two** activities of electronic Spreadsheet.

j) What is the most suitable chart type that could be used to represent each student subjects marks?

3. a) Consider the following Pascal Program and answer the questions given below.

```
Program salary(input,output);
const work_hours=8;
Var weeks, workingdays,working hours,days, hours:integer;
begin
        writeln("Enter the number of weeks");
        read(weeks);
        days:weeks*7;
        hours:=days*24;
        workingdays:=days*workinghours;
        writeln('Days=' :days);——————————— (A)
        writel('Hours=',hours);——————————— (B)
        writeln('Working Days=' :workingdays);——————————— (C)
        writel('Working Hours='working_hours,);——————————— (D)
end:
```

  i. Write down the value in the above program which does not change throughout the program. Write the name we use for such values which does not change.

  ii. Write down **four** examples for variables in the above program.

  iii. If the user input number of weeks as 4, what would be the outputs for A,B,C and D respectively?

  iv. Above Pascal program contains programming syntax errors. Rewrite the program without syntax errors.

  v. Briefly explain the following programming functions with examples.

   a) write()

   b) writeln()

(b) Consider the flow chart in **Figure 4** for reading a sequence of numbers and determining the largest and the smallest numbers. The contents marked by labels (P) to (T) are missing in the flow chart.

Identify and write down the contents for the places (P) to (T) in the flow chart.

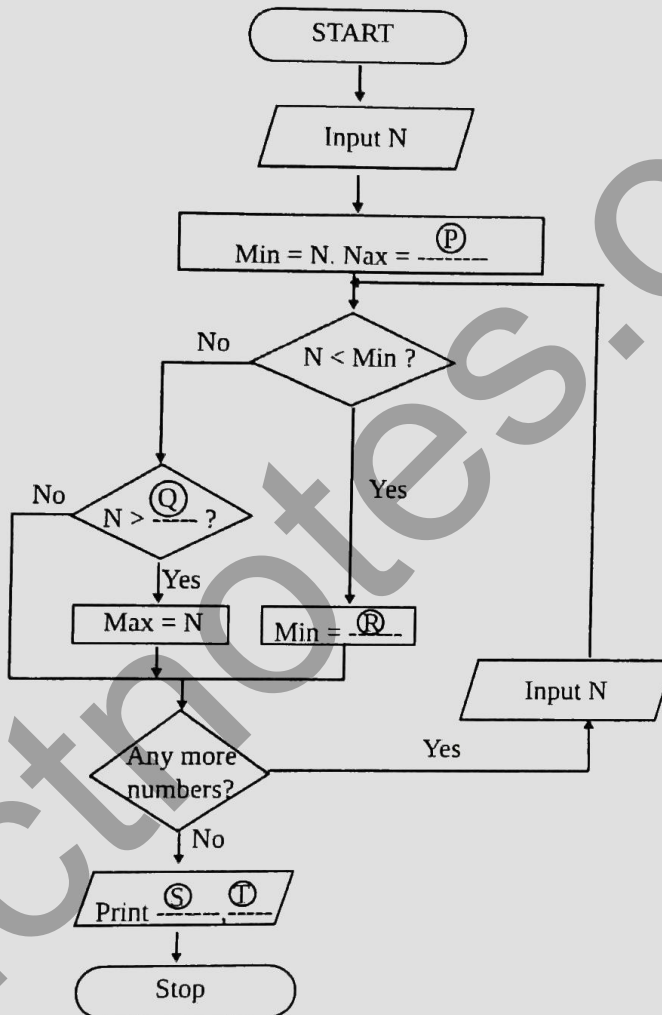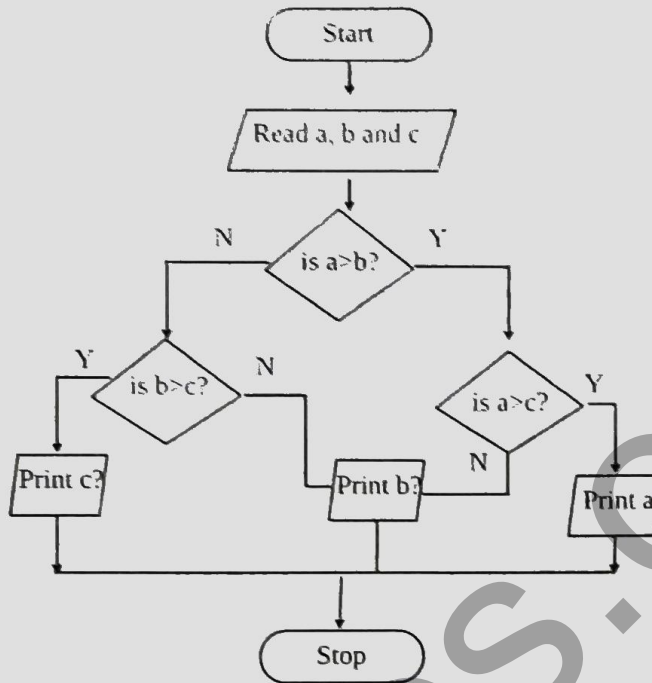**Note:** Give the answer against (P) to (T). You are **not** required to copy the flow chart in you answer.)

Figure 4

(b) Convert the flow chart shown below into pseudocode.

4. Three tables of the Computer Lab's database of Gemunu National School are given below.

User Table

User ID	User Name
U001	Mr. Sunil
U002	Mr. Namal
U003	Mr. Ravi
U004	Ms. Rashmi
U005	Ms. Rasheema
U006	Ms. Ranil
U007	Mr. Nizam

Use lab Table

Date	User Name	Item ID
21/08/2018	U001	Mr. Sunil
22/08/2019	U002	Mr. Namal
22/08/2019	U003	Mr. Ravi
23/08/2019	U004	Ms. Rashmi
24/08/2019	U005	Ms. Rasheema
25/08/2019	U006	Ms. Ranil
26/08/2019	U007	Mr. Nizam

Item Table

Item ID	Item Name	Stock
I1001	Desktop System	22
I1002	Laptop 1	4
I1003	Laptop 2	5
I1004	Laptop 3	3
I1005	Monitor 1	17
I1006	Monitor 2	5
I1007	Headset	30

a) List **two** primary key fields and corresponding table name in the above database system.
b) List the most suitable data type for the fields in the above three tables.
c) The school has purchased three laptops(Laptop2) and three monitors (Monitors2).
    i. Name the table which would be updated when including them.
    ii. Write the updated records.
d) Mr. Ravi has used a Laptop3 and a Headset on 30/08/2019.
    i. Name the table which would be updated when including them.
    ii. Write the updated record.
e) What tables should be joined to run a query to find out the total usage of items for Mr. Sunil for the month of August.
f) List **two** advantages and **two** disadvantages of databases.
g) State the relationships between the following tables.
    a) User Table – Use Lab table
    b) Use Lab table – Item table

5) (a)
    i) A student is asked to fill the following table after learning about the different number systems. Fill the labels from A to F. Show your calculations clearly.

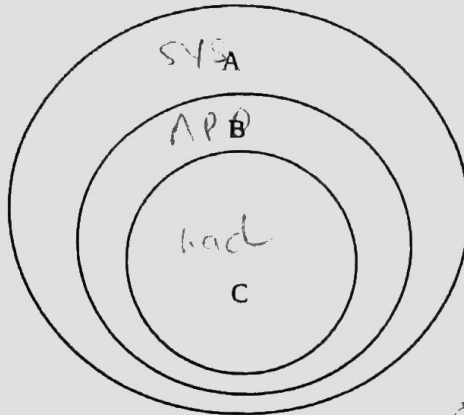| base	2	A	10	B
Number 1	1101101	C	109	D
Number 2	E	5414	F	BOC

    ii) Waruna has sent the following message to his friend Malik. It is created using the ASCII code. If the decimal value for character A is 65, find the message Waruna has sent.

    1001000, 1000101, 1001100, 1001100, 1001111

b) Nimal is a student who studies in grade 11 in Ihalagama Vidyalaya. He is a student who follows ICT. He has bought the following devices for the school computer center?
(Hard disk, RAM, Switch, Hub, VGA Card, DVD ROM, Router, Flash drive, Network Card)

    i) Select suitable devices from the given list and classify them into primary and secondary storage.
    ii) What are the devices that could be used to creat a computer for the school computer center?
    iii) Draw the network topology for the above school computer center with five computers.
    iv) A CRT monitor of a computer in the lab is not working properly. Nimal suggests buying an LCD monitor. Do you agree with Nimal? Explain.

c)

     i)   Briefly explain what an operating system is.

     ii)   Identify A, B and C in the diagram shown below.

     iii)   What is the difference between fragmentation and defragmentation?

     iv)   Briefly explain **three** examples of utility software.

6.   a)   Match column A with column B.

A	B
1. The data transmission is carried out while reflecting light.	A. Micro waves
2. Used in TV antenna and CCTV cables.	B. Infra-red
3. Commonly used in remote controllers.	C. Fiber optics
4. Used in satellite communication.	D. Coaxial cables

     b)   The hospital director board of Denipitiya base hospital decided to upgrade their services by developing the features given below.

         •   Use of information communication technology

         •   Online health facility

         •   Maintaining online information system.

     i.   Mention **two** machines that are used for diagnosing with their functions respectively.

     ii.   Mention **two** advantages having online information system at Denipitiya hospital.

     iii.   List **two** activities of telemedicine.

c) Piyal is a businessman. His business includes wholesale and retail. Buying, selling, storing, transaction and control bank transactions are some of the business activities. He decided to install a computerized system to achieve success in his business.

    i. Write **two** benefits Piyal would gain by using an automated system.

    ii. Draw the diagram of the waterfall model.

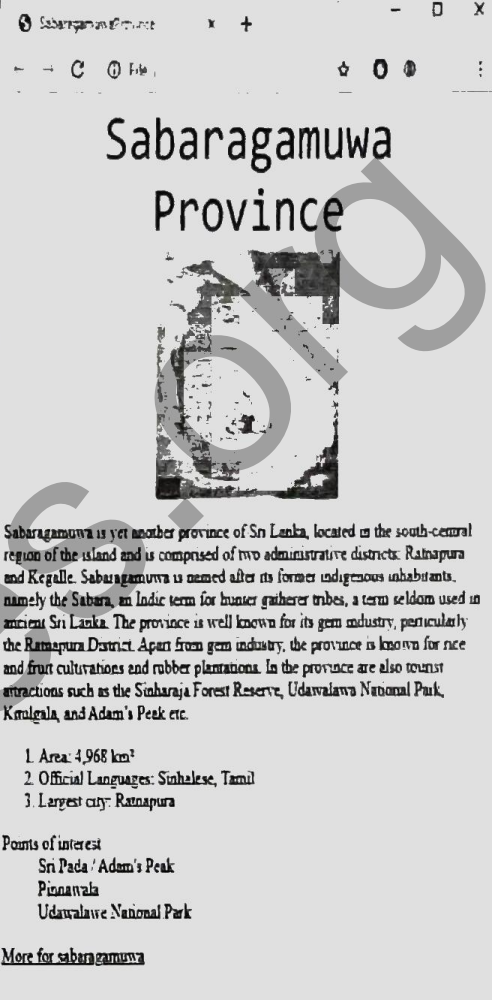   iii. The following two tables show four steps in SDLC and few examples of SDLC.

Match steps with the examples.

Steps of SDLC		Examples
A	Identification of requirements	Identification of main hardware systems and its components of the new systems.
B	Design the solution	Use suitable computer language to develop software of the proposed system.
C	Coding of the solution	The existing system is totally terminated and the new system is installed.
D	Deployment of the system	Use a questionnaire for gathering user needs.

    iv. Piyal decided to use the newly developed system with the existing manual system. Which type of deployment is described here. List **one** advantage and **one** disadvantage of the deployment method Piyal has used.

    v. After deploying the new system, Piyal had to get help of the system development team. Name **two** instances which system development team need to be involved in the system maintenance.

7.

a)   Following figure shows the HTML code and the respective web page.

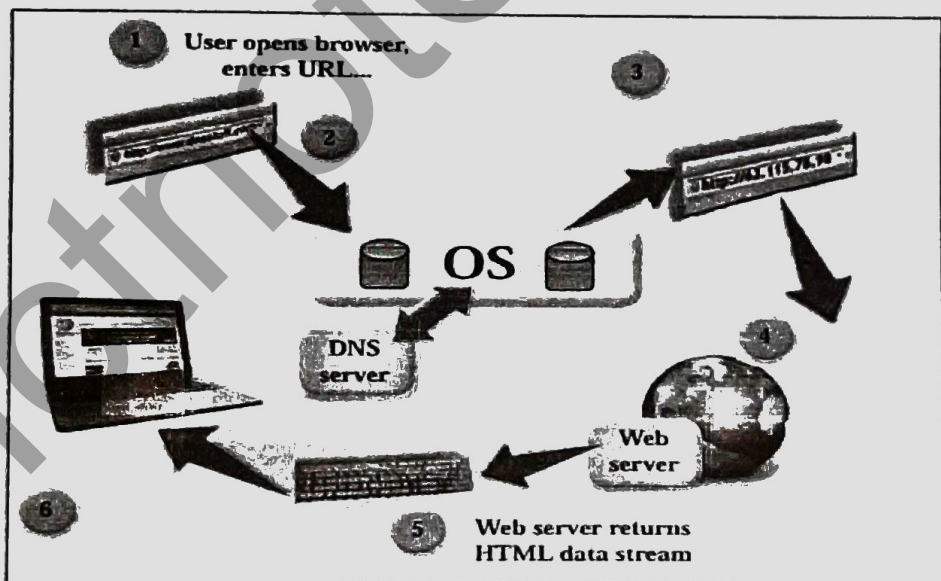| HTML source	Output
```<html><head><1>SabaragamuwaProvince</1></head><body><9>Sabaragamuwa Province </9><2><3 src="pic.jpg" height ="100" width ="100" ></2><10 align ="jestify" >Sabaragamuwa is yet another province of Sri Lanka, located in the south-central region of the island and is comprised of two administrative districts: Ratnapura and Kegalle. Sabaragamuwa is named after its former indigenous inhabitants, namely the Sabara, an Indic term for hunter gatherer tribes, a term seldom used in ancient Sri Lanka. The province is well known for its gem industry, particularly the Ratnapura District. Apart from gem industry, the province is known for rice and fruit cultivations and rubber plantations. In the province are also tourist attractions such as the Sinharaja Forest Reserve, Udawalawa National Park, Kitulgala, and Adam's Peak etc.</10><ol type ="1"><4>Area: 4,968 km²</4><4>Official Languages: Sinhalese, Tamil</4><4>Largest city: Ratnapura</4> <5> <6>Points of interest</6> < 7>Sri Pada / Adam's Peak</7> <7>Pinnawala</7> <7>Udawalawe National Park</7></5><8 href="http:www.sg.gov.lk">More for sabaragamuwa</8></body></html>```	

I)   Name suitable tags elements or attributes for the positions labeled from (1) to (10).

II) Write the output of the following HTML code when rendered by a web browser.

```
<table border = 1>
    <tr>
        <th>data1</th>
        <th clospan = "2">data2</th>
    </tr>
    </tr> <th>dta3</th>
        <td>data4</td>
        <td>data5</td>
        </tr>
    <tr>
        <th clospan = "3">data6</th>
    </tr>
</table>
```

III) The following diagram shows how Internet operations are executed. The labels 1 and 5 are given. Match the rest of the labels with the items given in the list below.

List{web browser renders HTML web page, Browser now has IP, Resolver, Browser sends "http get command to web sever"}

END