Department of Examinations, Sri Lanka		**80** **E** **I, II**

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கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2014 டிசெம்பர்
General Certificate of Education (Ord. Level) Examination, December 2014

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, selecting the* **first question** *and* **four** *others.*
> ✻ *First question carries* **20** *marks and each of the other questions carries* **10** *marks.*

1. (i) Lakmal travels around the country to sell computer parts and accessories. After each sale, he enters the sales details into his tablet computer using the touch screen. At the end of the day he views the total sales details. What is the (a) input device (b) output device used by Lakmal?

    (ii) Copy the Column **A** and Column **B** to your answer sheet and connect each item in Column **A** with the related item in Column **B** using arrows:

Column **A**		Column **B**
A service of Internet		Mozila Firefox
A Web Browser		Google
An email software		World Wide Web (WWW)
A search engine		Roundcube Webmail

    (iii) The following table contains descriptions of three different network types denoted as **A**, **B** and **C**.

Network Type	Description
A	Two or more computers directly linked within a small well-defined area such as a school computer lab.
B	A Network that connects users across a large distance such as between Colombo and New York.
C	A Network that links together branches of a bank within a city.

Select the most suitable network type for **A**, **B** and **C** from the following list.

List :   Wide Area Network, Local Area Network, Metropolitan Area Network.

    (iv) To get qualified for an award, students in a class must satisfy both the following conditions:
    Condition 1:   must have marks > 75% in subject 1
    Condition 2:   must have marks > 75% in either subject 2 or subject 3

    The Boolean variables **X, Y** and **Z** are defined as follows:
    X is true if a student has >75% marks for subject 1.
    Y is true if a student has >75% marks for subject 2.
    Z is true if a student has >75% marks for subject 3.
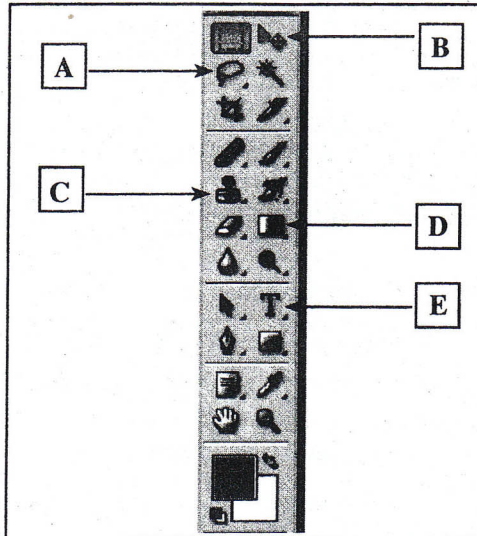
      (a) Write down a Boolean expression using variables **X, Y** and **Z** to represent the overall conditions that a student must satisfy to qualify for the award.

      (b) Draw a logic circuit equivalent to the Boolean expression in (a) above.

    (v) Convert the hexadecimal number $A7B_{16}$ into its equivalent binary number. Show your computations.

    (vi) Encoding schemes are used to represent characters and symbols within computers. List **two** different encoding schemes.

(vii) · (a) List **two** kinds of input devices that allow us to input digital images directly into a computer.

    (b) List **two** kinds of data storage media that can be used to exchange data or programs between two users.

(viii) The following image shows a part of a frequently used toolbar of a certain image editing software. Write down the functions performed by each of the tools labeled as A-E.

(ix) Consider the following pseudo code segment:

```
Sum = 0
Num = 10
While Num >= 0
    Sum = Sum + Num
    Num = Num – 2
End While
```

What are the values of *Sum* and *Num* when the execution of the While loop is completed?

(x) Write down a suitable phrase from the list given below, to fill each blank in the following statements (a) and (b).

    (a) The physical pains that occur as a result of involving in the same task for a long period of time are called ……………………………………… .

    (b) The condition of eyes such as dry eyes, blurred vision and double vision resulting from computer usage is called ……………………………………… .

    List : Carpel Tunnel Syndrome, Computer Vision Syndrome, Repetitive Stress Injuries

2. The following worksheet in a spreadsheet software provides a sample of information to process monthly payments for October for casual employees in a company.

	A	B	C	D	E	F	G
1	Employee Number	Employee Name	Daily Rate Rs.	Attendance in October	Monthly Payment	Bonus Rs.	Bonus Rate
2	E0001	Aruna	1,050.00	23			10%
3	E0002	Ashok	1,150.00	23			
4	E0003	Chethana	950.00	23			
5	E0004	Kareem	1,050.00	21			
6	E0005	Milanda	1,050.00	19			
7	E0006	Praveen	1,100.00	22			
8	E0007	Samantha	1,100.00	20			
150	E0149	Rahuman	1,050.00	18			
151	E0150	Shakya	1,000.00	23			

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(i) *Monthly payment* for an employee is calculated by multiplying the *Daily Rate* by the *Attendance* in that month. Write the necessary formula which should be written in cell E2 to display the *monthly payment* of the employee with *Employee Number* E0001 for the month of October.

(ii) The steps necessary to calculate the monthly payments for October for the rest of the employees are given below:

Select cell ......(A)......

Click on icon for ......(B)......

Select the range ......(C)...... to ......(D)......

Click on the icon for ......(E)......

Select the correct terms for the labels (A) to (E) from the list given below.

List of terms: Paste, Cut, Copy, E3, E2, E151

(iii) A monthly *bonus* is paid to all employees. The *bonus rate* for October is given in cell G2. The amount of *Bonus* is calculated by multiplying the *Monthly Payment* by the *Bonus Rate*. Write down the formula to display the *Bonus* in cell F2, for the employee with *Employee Number* E0001, assuming that this formula will be copied to other cells to calculate the *bonus* for all the employees.

(iv) Write down the formula in F3 when the formula written in (iii) above is copied to cell F3 to calculate the *Bonus* for the employee with *Employee Number* E0002.

3. Consider the following database tables that store data about books, students and books borrowed by students in a school library.

Book Table

BookID	Book_Title	Borrowed
B1001	Oliver Twist	True
B1002	Curious George	False
B1003	Harry Potter	True
B1004	Thennali Raman	True
B1005	Arthur	False
B1006	Manuthapaya	True
B1007	Gamperaliya	False

Borrowing Table

Date	BookID	S_ID
21/8/2014	B1001	S003
15/9/2014	B1003	S002
15/9/2014	B1004	S002
15/9/2014	B1006	S001

Student Table

S_ID	Student_Name
S001	Mithun
S002	Geetha
S003	Niyas
S004	Kumar

(i) List **two** primary key values.

(ii) The library added a new book to the library with Book_Title 'Lion King' and BookID 'B1008'.

  (a) What table(s) need(s) to be updated?

  (b) Show the updated row(s) of the table(s).

(iii) Kumar goes to library on 25/10/2014 and borrows the book 'Arthur'.

  (a) What table(s) need(s) to be updated?
  (b) Show the updated row(s) of the table(s).

4. (i) Write down **two** methods of creating HTML web pages.
   (ii) Copy the Columns **X** and **Y** given below into your answer script and draw arrows between matching items in Column **X** and Column **Y**.

Column **X**	Column **Y**
Domain Name	doe@gov.lk
IP address	http://www.doenets.lk/exam/index.html
Email address	216.27.16.138
URL	ac.lk

(iii) Consider the HTML source code and its corresponding output given in the Table. The code has ten HTML tags indicated by labels ❶ to ❿. Select the correct tags from the list given below. You are only required to write down the label number and the corresponding HTML tag.

List: HREF, HR, OL, BODY, SRC, HTML, UL, TR, TABLE, TH, TD, TITLE

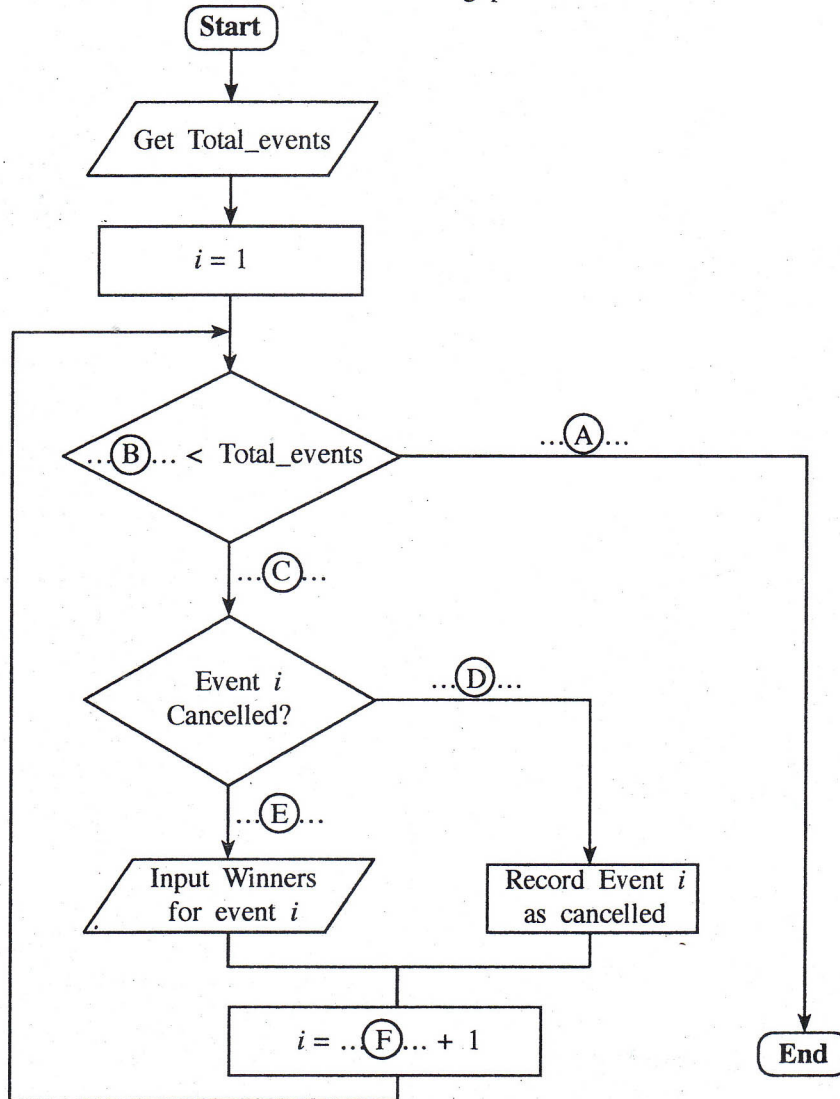| Source Code	Output
`<❶>` `<HEAD>` `<TITLE> XYZ Training Center Web Site </TITLE>` `</HEAD>` `<❷>` `<CENTER>` `<H1> XYZ TRAINING CENTER </H1>` `<IMG ❸ ="sports.gif">` `</CENTER>` `<P>` `XYZ is the leading Training center in the Western province and provide efficient and quality service for the sports loving community. </P>` `<H4> We offer the following sports activities </H4>` `<❹>` `<H5>` `<❺>` `<LI>Indoor Activities` `<❻>` `<LI> Table Tennis` `<LI> Badminton` `</❻>` `<LI>Outdoor Activities` `<❻>` `<LI> Swimming` `<LI> Tennis` `</❻>` `</❺>` `</H5>` `<❼ BORDER=3 >` `<CAPTION> Activity Charges </CAPTION>` `<❽> <❾> Activity </❾> <TH> Monthly Charge</TH></❽>` `<❽> <TD> Swimming </TD> <TD> Rs. 300</TD></❽>` `<❽> <TD> Tennis</TD><TD> Rs. 500</TD></❽>` `<❽> <TD> Table Tennis</TD><TD> Rs. 200 </TD></❽>` `<❽> <TD> Badminton </TD><TD> RS.250</TD></❽>` `</❼>` ` ` `For further enquiries and reservations` `<A ❿ ="http://xyz.ac.lk">Click Here</A>` `</BODY>` `</HTML>`	### XYZ TRAINING CENTER XYZ is the leading Training center in the Western province and provide efficient and quality service for the sports loving community. ――――――――――― **We offer the following sports activities** 1. **Indoor Activities** o **Table Tennis** o **Badminton** 2. **Outdoor Activities** o **Swimming** o **Tennis** Activity Charges | Activity	Monthly Charge
Swimming	Rs. 300
Tennis	Rs. 500
Table Tennis	Rs. 200
Badminton	Rs. 250 | For further enquiries and reservations <u>Click Here</u>

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5. (i) The array *numar[]* is defined to store the 10 numbers from 1 to 10. The following *for* loop with missing values in Ⓐ and Ⓑ is used to store the above 10 numbers in *numar[]*.

$$For \ i = 1 \ To \ Ⓐ$$

$$numar[Ⓑ] = i$$

$$Next \ i$$

Write down the relevant values for Ⓐ and Ⓑ.

(ii) The sportsmeet of a certain school has many events. For each event, the names of the winners of the first, second and the third places need to be recorded. Some events may not take place due to some reason. For an event that does not take place, it is necessary to record it as cancelled. The following flowchart with missing labels A to F presents this scenario. Here '*i*' is used as a variable for the event number of the event being processed.
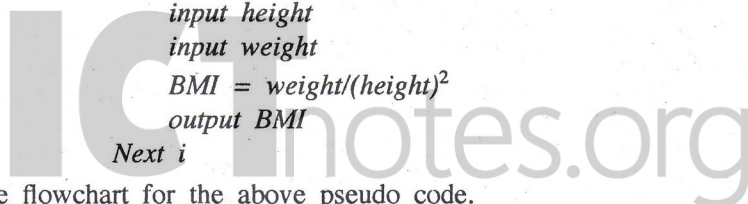

Identify and write down the appropriate values against the labels A to F. (You are not required to copy the flowchart to your answer script.)

(iii) Consider the following pseudo code to calculate the Body Mass Index (BMI) for each student of a class.

```
input total_students
For i=1 To total_students
    input height
    input weight
    BMI = weight/(height)²
    output BMI
Next i
```

Draw a suitable flowchart for the above pseudo code.

6. (i) A Learning (Education) Management System (LMS) is an application of ICT in education sector. Write down **two** other applications of ICT in the education sector.

(ii) An LMS can be used to conduct the activities given in the following table more efficiently and conveniently.

Therefore, the three categories students, teachers and school administration are benefited.

Activity Number	Activity
1	registration of students
2	marking students attendance register
3	issuing of certificates
4	conducting preliminary tests to assess students' skills
5	conducting school based assessments
6	using multimedia enriched lessons for self studying
7	using multimedia enriched lessons to classroom teaching
8	ability to access preferred lesson at a preferred time

Identify which category is mostly benefited by using the LMS for each of the above activities and write the respective category against the activity number.

(iii) The software that are meant to adversely affect computer systems is known as malicious software (malware). 'Computer virus' is one type of malware.

(a) Write **two** other types of malware.

(b) Write down **two** kinds of damages caused by a computer virus.

(c) Write down **two** methods to protect a standalone computer from virus infection.

7. (i) Consider the expressions about the System Development Life Cycle (SDLC) given in the Column **X** and Column **Y** below.

Column **X**	Column **Y**
1. A characteristic of a system	A - final stage of testing and debugging of a system
2. An example for a system	B - having discussions with the client
3. A main fact gathering technique	C - next phase can be considered only if the current phase is successful
4. A tool used in detailed design	D - is made up of different components
5. User acceptance testing	E - flowchart
6. An advantage of phased implementation	F - transactions of school canteen.

Each expression in Column **X** has a correspondence to one of the expressions in Column **Y**. Select each expression in Column **X** and write down its corresponding expression in Column **Y**.

eg: 1 ⟶ D

(ii) Using the world wide web (www) to find information is a common practice today.

Assume that you have a computer with required software at your home.

(a) Name **one** hardware device needed to connect the computer to the Internet.

(b) Assume that you want to find information about the 'History of Sri Lanka' and that you do not know the web address (URL) of a website that has this information.

Write the steps you would follow to find this information on the world wide web.

* * *

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