# UNIVERSITY OF RUHUNA
## BACHELOR OF SCIENCE (GENERAL) DEGREE
## LEVEL II SEMESTER II EXAMINATION
## NOVEMBER/DECEMBER – 2016

**COURSE: ICT2b13 - Certificate Course in Information Technology** **Duration: 02 Hours**

***Answer four (04) questions only***

1.

a) Write short descriptions on the following topics.

i. Data
ii. Information
iii. DBMS

(15 marks)

b) A tution center wants to keep the following information about their teachers and students in a database.

Teacher

| T_ID | T_Name | Gender | T_Subject | T_Hours | T_Fees |
|---|---|---|---|---|---|
| T001 | Perera A.M. | Male | Science | 3 | 1500.00 |
| T002 | Kumari L.K. | Female | Maths | 3 | 1700.00 |
| T003 | Silva U.W. | Male | English | 2 | 800.00 |

Student

| S_ID | S_Name | Grade | S_Subject |
|---|---|---|---|
| S001 | Chamara A.S. | 10 | Science |
| S002 | Geetha R.D. | 9 | English |
| S003 | Kanthi P.L. | 11 | Maths |
| S004 | Chanaka C.M. | 11 | Science |

Considering the above table structures write SQL statements for the followings.

i. Create a blank database called "EduCenter".

ii. Create two tables called Teacher and Student as given above.
Hint: T_ID is the Primary key of Teacher table
S_ID is the primary key of Student table

iii. Insert first record to the Teacher table you have created in b(ii) above.

iv. Retrive the structure of the Student table.

v. Retrive T_Name and T_Subject from the Teacher table.

vi. List the details of students who follow Science or English as a subject.

vii. Retrive the IDs and names (S_ID and S_Name) of students who study in or above Grade 10.

viii. List the S_ID of student whose names begin with the letter "C".

ix. Using nested queries, display T_ID and T_Name of teachers whose fees is grater than 1200.00.

x. Delete details of teacher who teach Science subject from the Teacher table.

xi. Delete the table called Teacher from the database.

(85 marks)

2.

*a)* Select the most suitable words from the following table and complete the blank spaces from (a) to (o) in the paragraph below about Linux.

*List of Words*

| | | | | |
|---|---|---|---|---|
| **Unix** | **Open Source** | **Linux kernel** | **Android** | **Distribution** |
| **Operating System** | **Linux** | **GNU/Linux** | **Free Software Foundation** | **GNU components** |
| **C programming** | **Assembly** | **Linus** | **Minix** | **Linux community** |

You may have heard of Unix, which is an _____(a)_____ developed in the 1970s at Bell Labs by Ken Thompson, Dennis Ritchie, and others. Unix and _____(b)_____ are similar in many ways, and in fact, Linux was originally created to be similar to _____(c)_____.

Linux was created in 1991 by _____(d)_____ who was a student at the University of Helsinki. Torvalds built Linux as a free and open source alternative to _____(e)_____, another Unix clone that was mainly used in academic purpose. Linux is the best-known and most-used _(f)_ operating system.

We use the term "Linux" to refer to the _____(g)_____, but also the set of programs, tools, and services that are typically bundled together with the Linux kernel to provide all of the necessary components of a fully functional operating system. Some people, particularly members of the ___(h)___

, refer to this collection as ____(i)____, because many of the tools included are GNU components. However, not all Linux installations use ____(j)____ as a part of their operating system. ____(k)____, for example, uses a Linux kernel but relies very little on GNU tools.

Most of the Linux kernel is written in the ____(l)____ language, with a little bit of ____(m)____ and other languages scattered in.

But the ____(n)____ is much more than the kernel, and needs contributions from lots of other people besides programmers. Every ____(o)____ contains hundreds or thousands of programs that can be distributed along with it.

(45 marks)

b) List three (03) Gnu/Linux tools. (15 marks)

c) List five (05) Linux Distributions (15 marks)

d) Write the results of executing the following Linux commands in a shell prompt

i. echo " #! /bin/bash" > /home/user/userlist.sh

ii. cat example.sh >> /home/user/userlist.sh

iii. cd /home/user

iv. chmod 763 userlist.sh

v. ./userlist.sh

(25 marks)

3.

a) Write five (05) advantages of using fiber optic cables in computer networks. (30 marks)

b) List the devices that we used in the last three (03) layers in OSI reference model.

(20 marks)

c)

i. What is the role of a **router**?

ii. Give two (02) examples each for **routing** and **routed** protocol.

(30 marks)

d) What are the characteristics of **Connection Oriented** protocols? Give one example for each of **connection less** and **connection oriented** protocols.

(20 marks)

4.

a) Write two (02) examples for each of the followings.

i. Web Server Software

ii. Web Browser Software

iii. Services available in the Internet

iv. Search Engines

(08 marks)

b) Explain three (03) methods of applying Cascading Style Sheet to a web page by using simple examples. (15 marks)

c) Write CSS (External Style Sheet) statements to do the following Tasks

i. Make all heading tags purple color.

ii. Change background color of a page to #cccccc hex value.

iii. A CSS class to center text .

iv. Include divisions according to the details given in the table below.

| **Division Name** | **Attributes** | **Values/Requirements** |
|---|---|---|
| Container | Width<br>top margin<br>left & right Margin<br>Padding<br>border | 1000px<br>10px<br>auto<br>10px<br>2px solid #000000 |
| header | Padding<br>background color | All padding should be 10px<br>#f0e2bb |
| footer | Background color<br><br>color | #933<br><br>#FFFFFF |
| content | Background color | #fff |

(25 marks)

d) Write HTML code to develop the web page shown in ***Figure 01*** below according to the following guide lines (52 marks)

i. Include the external style sheet (style.css) you written above in part (c) above.

ii. Write html code to include the image named 'ruhuna.gif' in the header division of your page. (assume your html file and 'ruhuna.gif' image are stored in the same folder)

iii. Link the text "University of Ruhuna " to the University Home page.

iv. Center align the text of the footer division by using the css class written in part (c) above.

v. Justify the second paragraph about the vision using the css class in the external style sheet you written in part (c) above.

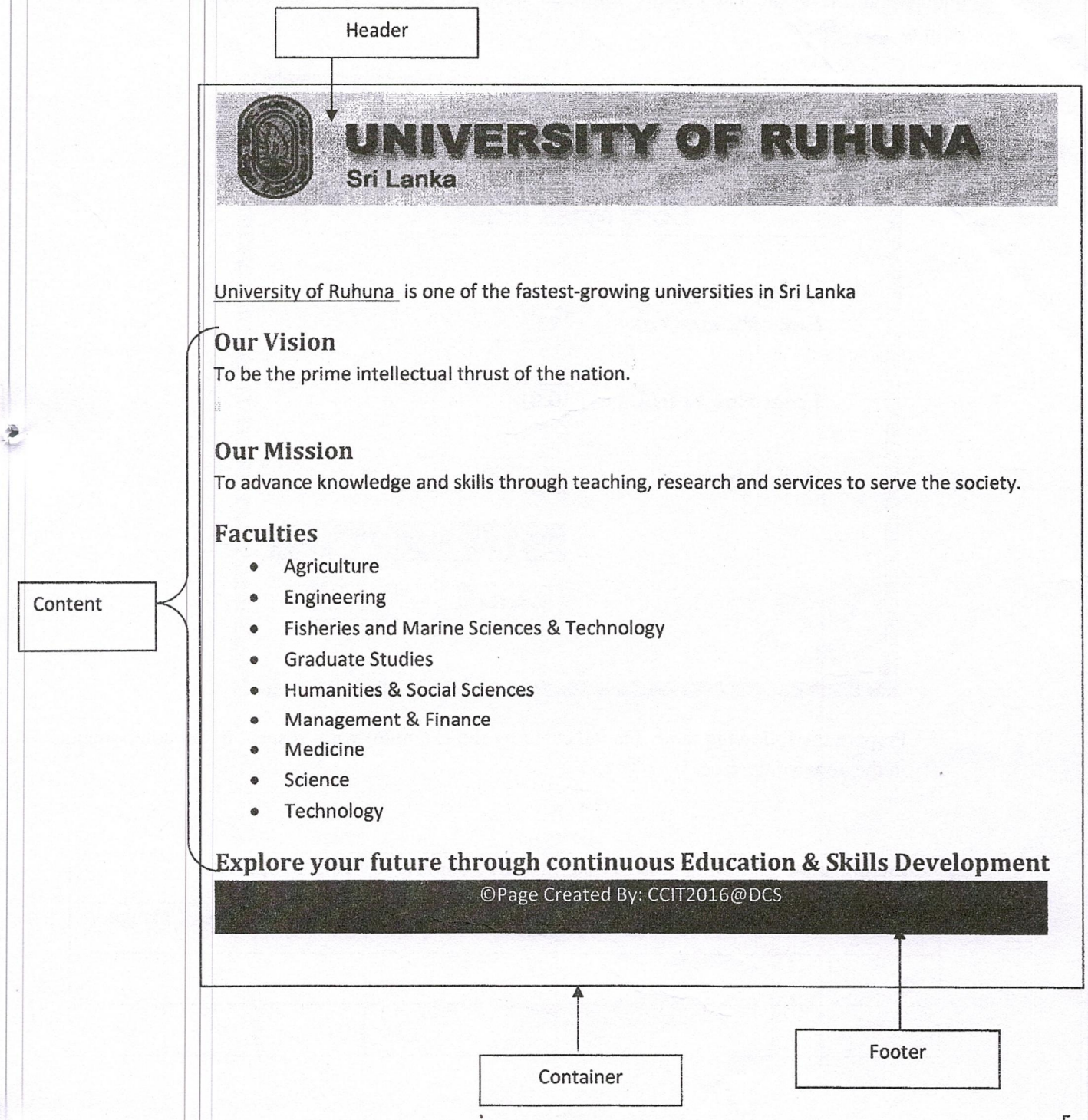





***Figure 01***

5.

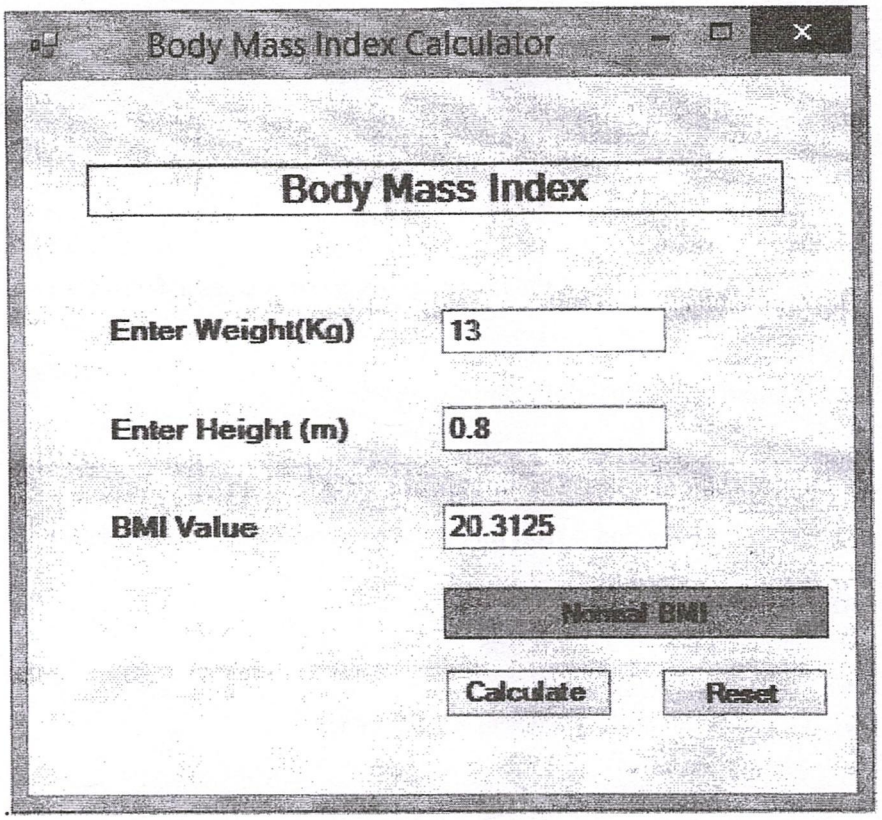
a) Write brief notes on the followings with respect to Microsoft visual studio.NET

i. Application code compilation process.
ii. MDI Application

(20 marks)

b) Answer the questions given below by considering the following description and the Visual basic .NET interface given below.

Body mass index (BMI) is an approximate measure of deciding, whether someone is over or underweight. It is calculated by dividing their weight in kilograms by the square of their height in in metres.




i. Prepare the following table (as indicated by the example) with respect to the components in the above interface.

| Control Name | Naming convention | Name Property | Text Property |
|---|---|---|---|
| Ex:- form | frm | frmBMI | Boby Mass Index Calculator |
| | | | |
| | | | |

ii. Write function procedure to calculate **BMI** and return the value of the **BMI.**
**(Hint:- BMI=weight/(height)$^2$ )**

iii. Write required code segment to Display **BMI Value** (in BMI value section) and the relevant **Message** (in the section indicated as "Normal BMI" in the above interface) given in the following table when the user clicks on the "Calculate" button..
**(You should use the name property value of components written in the table in b(i) above and code in b(ii) above)**

| BMI | Message |
|---|---|
| <18.5 | "Danger zone" |
| Between 18.5 and 24.9 | "Normal BMI" |
| Between 25 and 29.9 | "Overweight" |
| >30 | "Obese" |

iv. Write Sub procedure clear the content (values and messages) in the above interface.

(80 marks)