



EASTERN UNIVERSITY, SRI LANKA

DEPARTMENT OF MATHEMATICS

FIRST YEAR EXAMINATION IN SCIENCE-2015/2016

FIRST SEMESTER (JULY / AUG., 2017)

CS 152 – INTRODUCTION TO PROGRAM DESIGN AND PROGRAMMING
(PRACTICAL)

Answer all questions

Time allowed: 2 Hours

Note : Create a folder with your index number on the desktop and save your files with the question number and your index number.

Eg: Q1_1138

Q1)

- a. Write a program in C++ to print the **Floyd's Triangle** for the value entered by the user. If the user enters 5, the Floyd's triangle is as below:

```
1
0 1
1 0 1
0 1 0 1
1 0 1 0 1
```

- b. Write a program in C++ to convert a decimal number into binary.

eg:

Enter a decimal number to convert : 25

The Binary value of 25 is 11001

- Q2) Write a C++ program to help a company to automate its salary system. Define a structure XYCompany with the following components: E_Name of type as string, E_Num of type as integer, Age of type as integer, Sex of type as string and Basic_Salary of type as double. Declare an array as a structure variable to read five employees details.

Your program must contain the following functions:

- (i) **getData()**: Read employee name, employee number, age and sex from the user.
- (ii) **BasicSalary()**: Find the basic salary of the employee using the following conditions,
 - If employee is a male and age between 20 and 30, then salary is Rs.18000.
 - If employee is a male and age between 30 and 40, then salary is Rs.25000.

- If employee is a male and age between 40 and 50, then salary is Rs.35000.
 - If employee is a male and age between 50 and 60, then salary is Rs.45000.
 - If employee is a female and age between 20 and 35, then salary is Rs.20000.
 - If employee is a female and age between 35 and 50, then salary is Rs.30000.
 - If employee is a female and age between 50 and 60, then salary is Rs.40000.
- (iii) **Bonus():** Find the salary increment using the following criteria,
- The minimum salary increment is Rs.2000:
 - If the basic salary of a staff < Rs.25000, 15% of the salary is increased:
 - If the basic salary of a staff \geq Rs25000, 20% of the salary is increased.
- (vi) **Display():** Display all employees details as a table format with the following titles Employee_Name, Employee_Number, Age, Sex, Basic_Salary and Net_Salary (Net_Salary=Salary + Bonus).