



EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
FIRST EXAMINATION IN SCIENCE (2010/2011)
FIRST SEMESTER (Nov/Dec, 2012)
CS 152 – PRACTICAL WORK ON CS 103

ANSWER ALL QUESTIONS

TIME: TWO HOURS

Q1)

Declare a *structure* to calculate the final Grade Point Average (GPA) for Computer Science first year students. The student's record consisting of the following fields: Index No, Name, Marks of CS103, CS152, CS104 and CS153, Grade, GPA value, Number of credits, SubjectGPA and FinalGPA.

Write a C++ program to keep records for 5 students to do the following task:

1. Input the student Index No, Name and Marks from the keyboard.
2. The range of Marks should be 0 to 100; Otherwise Error message will be displayed.
3. Calculate the Grade and GPA value using the following table:

Marks range	Grade	GPA
$M \geq 70$	A	4.0
$60 \leq M < 70$	B	3.7
$50 \leq M < 60$	C	3.3
$40 \leq M < 50$	D	3.0
$M < 40$	E	2.7

4. Calculate the SubjectGPA for each subject using the following table:

Subject	No_of_credits
CS103	2
CS152	1
CS104	2
CS153	1

5. Calculate the FinalGPA for a student using this equation.
 $FinalGPA = \frac{\text{sum_of_SubjectGPA}}{\text{Total_no_of_credits}}$
6. Display every student's record in the following format:

IndexNo : PS 1111

Name : Sanga

Subject	Marks	Grade	GPA	No_of_Credits	SubjectGPA
CS103	80	A	4.0	2	8.0
CS152	65	B	3.7	1	3.7
CS104	58	C	3.3	2	6.6
CS153	95	A	4.0	1	4.0

Sum_of_SubjectGPA = 22.3

Total_no_of_credits = 6

FinalGPA = 3.72

----- 70 Marks-----

Q2)

Write a C++ program to display the following pattern using *for-loops*.

```
      *
     *S*
    *S*S*
   *S*S*S*
  *S*S*S*S*
 *S*S*S*S*S*
*S*S*S*S*S*S*
*S*S*S*S*S*S*S*
```

----- 30 Marks -----