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EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
FIRST EXAMINATION IN SCIENCE (2011/2012)
FIRST SEMESTER (Dec/Jan, 2013/2014)
CS152 - PRACTICAL WORK ON CS 103

ANSWER ALL QUESTIONS

TIME: TWO HOURS

1)

a) Write a C++ program to print the following patterns:

i.

```

      *
     * *
    *   *
   *     *
  *       *
 
```

ii.

```

      1
     2 1 2
    3 2 1 2 3
   4 3 2 1 2 3 4
  5 4 3 2 1 2 3 4 5
 
```

iii.

```

& & & & & & & & & &
& A & B & C & D & E
& & & & & & & & & &
& A & B & C & D & E
& & & & & & & & & &
& A & B & C & D & E
 
```

b) Write a C++ program to return x raised to the power n, where n can be any integer.

2)

- a) Write a C++ program to find the factorial of n (i.e n!)?
- b) Declare a structure to store the student's details in a class:

```
Name;
Index_No;
Marks[5].
```

Write a C++ program to do the following:

- I. Read the necessary data (Name, Index_No and Marks) from the keyboard for 2 students.
- II. Write a function to calculate the **Average** of marks of each student.
- III. Write a function to calculate the **Grade** for average of each student.(Use the table given below).

Average >=80	A
60 <= Average <80	B
50 <= Average <60	C
40 <= Average <50	D
Average <40	F

- IV. Display the Name, Index_No, five Marks and Average with Grade.

Your output should be like this:

```
Enter your name : John
Enter your index no : PS 111
Enter your marks : 78          65    34    95    78
```

```
Name:           John
Index No:       PS 111
Marks:          78, 65, 34, 95 and 78
Average:        70
Grade:          B
```