NAME				SURNAME				
Student ID	**S**							**B/1**
☐AAA-LIB/English ☐LIC-ZZZ/English ☐Others:..................								

QUESTION 1	Result
Given the following 8bit number: 1011 0110 Determine value of the number when it is interpreted as - Pure binary (BIN) - Sign and magnitude (SM) - 2's complement (CA2)	BIN: SM: CA2:
Steps: 	

QUESTION 2	
Calculate the true table of the following function $f(x, y, z) = z \cdot \overline{(x \cdot y)} + \overline{x} \cdot z$	
Answer: 	

QUESTION 3	
What are the main differences between *internal memory* and *external memory?*	
Answer: 	

QUESTION 4 (PROGRAMMING)	

There is the file containing the grades of a group of students from various universities. Each line is for one student; The first part of the line is the student ID (one string of maximum 15 characters), followed by a list of the grades (integer numbers) of the student which ends with -1.

Write a C program that takes an argument from command line as the name of the file containing the group of students, and finds the ID of the student who has the highest average grade.

Assumption can be made that no student has the exactly same average grade with another student.

The number of student in the group is not known and may be very large. The number of exams taken by each student is not fixed and is not known.

An example of the file:

File **grade42.dat**
s11111 30 28 18 -1
sa44er44 23 18 30 18 29 18 29 -1
s33333 30 30 -1
22222idx 18 -1

C:\> **EXAM grade42.dat**

The ID of the student with highest average garde is s33333.

QUESTION 1	*Result:*
Given the following 8bit number: 1011 0101 Determine value of the number when it is interpreted as - Pure binary (BIN) - Sign and magnitude (SM) - 2's complement(CA2)	BIN: SM: CA2:

Steps:

QUESTION 2	

Calculate the true table of the following function

$$f(x, y, z) = y \cdot \overline{(x \cdot z)} + \overline{x} \cdot z$$

Answer

QUESTION 3	

What is the meaning of the *frequency* of a BUS?

Answer:

QUESTION 4 (PROGRAMMING)	

The file **GRADES.DAT** contains the grades of a group of students from various universities. Each line is for one student; The first part of the line is the student ID (one string of maximum 15 characters), followed by a list of grades (integer numbers) which ends with -1.

Write a C program that takes an arugment from command line as a grade, and outputs the student who has the grade for most times.

You can assume that there is no student who has a grade of same times as another student.

The number of students is not known, and can be very large. The number of exams taken by a student is not fixed and not known.

An example of the file:

File **GRADES.DAT**
s11111 30 28 18 18 -1
sa44er44 23 18 18 29 18 29 -1
s33333 30 30 -1
22222idx 18 -1

C:\> **EXAM 30**

The ID of the student who has the most times of 30 is s33333.