Q1 Academic Honesty

1 Point

It is a violation of the Academic Integrity Code to look at any reference material other than your textbook and lecture notes, or to give inappropriate help to someone or to receive unauthorized aid by someone in person or electronically via messaging apps such as WhatsApp. Academic Integrity is expected of all students of Hacettepe University at all times, whether in the presence or absence of members of the faculty. Do NOT sign nor take this exam if you do not agree with the honor code.

Understanding this, I declare I shall not give, use or receive unauthorized aid in this examination.

Signature (Specify your name and surname as your signature)

Mehmet Taha USTA MTUSTA

While answering the following questions, please consider the implementations that we discussed in our lectures unless stated otherwise.

Q2

49 Points

Q2.1

4 Points

When you declare an array using the following statement inside a function, the element values are automatically initialized to 0.

```
int matrix[5][5];
```

- (●) True
- ( ) False

Q2.2

15 Points

What is the output of the following code?

```
#include <iostream>
using namespace std;

int main()
{
  int matrix[4][4] =
    {{1, 2, 3, 4},
     {4, 5, 6, 7},
     {8, 9, 10, 11},
     {12, 13, 14, 15}};

  for (int i = 0; i < 4; i++)
    cout << matrix[i][1] << " ";

  return 0;
}
```

2 5 9 13

Q2.3

15 Points

What is the printout of the following program?

```
#include <iostream>
using namespace std;

int main()
{
  int values[2][4] = {{3, 4, 5, 1}, {33, 6, 1, 2}};

  int v = values[0][0];
  for (int row = 0; row < 2; row++)
    for (int column = 0; column < 4; column++)
      if (v < values[row][column])
        v = values[row][column];

  cout << v << endl;

  return 0;
}
```

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Q2.4

15 Points

What will be displayed by the following code?

```
#include <iostream>
using namespace std;

const int COLUMN_SIZE = 3;

double sum(const double m[][COLUMN_SIZE], int rowSize)
{
  int sum = 0;

  for (int i = 0; i < rowSize; i++)
    sum += m[i][i];

  return sum;
}

int main()
{
  double m[3][3] = {{1, 2, 3}, {1.5, 2.5, 3.5}, {0.1, 0.1, 0.1}};
  cout << "\nSum of all elements is " << sum(m,3) << endl;

  return 0;
}
```

3.6

Q3

50 Points

Q3.1

15 Points

Given a Lower Triangular Matrix `A[5][5]` , in a single dimensional array representation of the matrix A, what will be the index of item at `A[3][2]`?

not zero.

Q3.2

15 Points

Given a sparse matrix `int A[5][5]`, what should be the maximum number of non-zero values so that instead of two dimensional representation, using an array of below struct type will be more space efficient? (Note: int is 4 bytes)

```
typedef struct{
    int col;
    int row;
    int value;
}term;
```

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Q3.3

20 Points

Given struct definition and struct variable creation below, which of the choices are invalid? You can select more than one.

```
typedef struct
{
int month ;
int day ;
int year ;
}DateType;

...

DateType mydate;
DateType nextdate;

mydate.month = 2;
mydate.day =12;
mydate.year =1920;
```

- [ ] `cout<< mydate;`
- [ ] `nextdate = mydate;`
- [x] `DateType newdate = mydate + nextdate;`
- [x] `if (newdate > mydate)`

Quiz 2

GRADED

STUDENT
MEHMET TAHA USTA

TOTAL POINTS
41 / 100 pts

QUESTION 1

Academic Honesty **1** / 1 pt

QUESTION 2

(no title) **30** / 49 pts

2.1 (no title) **0** / 4 pts

2.2 (no title) **15** / 15 pts

2.3 (no title) **15** / 15 pts

2.4 (no title) R **0** / 15 pts

QUESTION 3

(no title) **10** / 50 pts

3.1 (no title) **0** / 15 pts

3.2 (no title) **0** / 15 pts

3.3 (no title) **10** / 20 pts