

Discrete Structures

Final Project

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General Guidelines

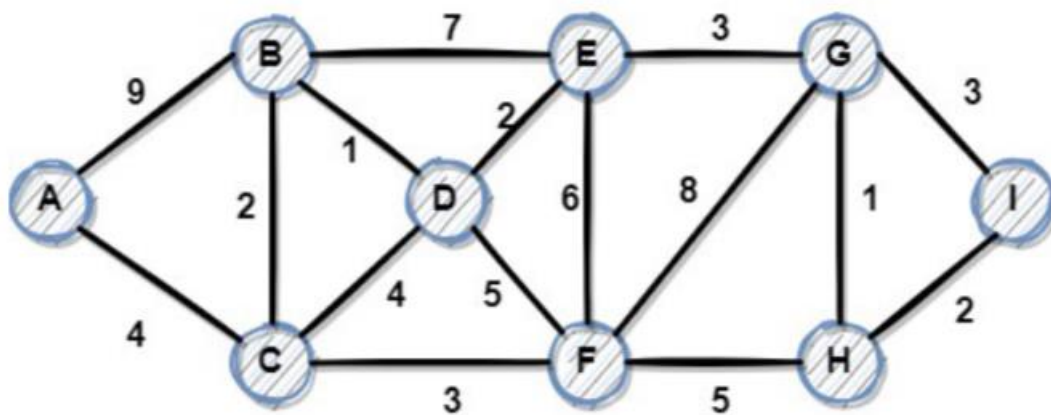
1. Peer plagiarism and the late submissions are strictly not allowed
2. **Deadline (As mentioned on Google Classroom)**

Question No 1 (10)

Write down a program for Prim's algorithm to convert the given tree into minimum spanning tree.

Using C++ and built-in libraries but you must have complete knowledge of it.

- Code must be commented accordingly otherwise marks will be deducted.
- Attach the output in word document.



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

void printMST()
{
    /*provide implementation*/
}

void createMST()
{
    /*provide implementation*/
}

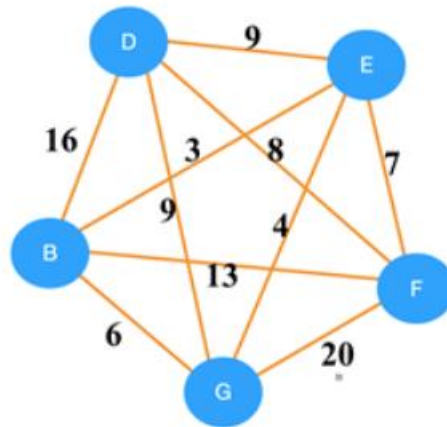
/*this snippet is just for a rough idea about the implementation
implement however it seems convenient*/
int main()
{
    /*implementation of main function */
    return 0;
}
```

Question No 2 (10)

Write down a program for Kruskal's algorithm to convert the given tree into minimum spanning tree.

Using C++ and built-in libraries but you must have complete knowledge of it.

- Code must be commented accordingly otherwise marks will be deducted.
- Attach the output in word document.



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

class Graph
{
    void printMST()
    {
        /*provide implementation*/
    }

    void createMST()
    {
        /*provide implementation*/
    }

    /*this snippet is just for a rough idea about the implementation
    implement however it seems convenient*/
};

int main()
{
    /*implementation of main function */
    return 0;
}
```

Question No 3 (40)

Write down all your understanding of the following probability topic in your own sentences. It must be handwritten.

NO PLAGIARISM WILL BE TOLERATED IN ANY SINGLE QUESTIONS. (5 marks each)

And then create your own example and solve it using those concepts. Your question must fulfill all the requirements needed by the concept by which you will solve it. (5 marks each)

No question should match with any of your classmates. It must be your own thinking.

Topics are:

- **Probability with and without replacement.**
- **Inclusive Exclusive events**
- **Baye's theorem.**
- **Equally Likely Events**
- **Complement rule**
- **Addition theorem.**
- **Multiplication theorem**
- **The Partition Theorem (Law of Total Probability)**