Department of Electrical and Computer Engineering
North South University

Course CSE 373
Sections: 2 and 3
Quiz 2
Summer 2020

Start time: 7:00 PM
End time: 7:45 PM

Instruction: Submit via google classroom
Answer the following questions. Each question carries 10 marks.

1 Suppose you are a manager of an event management company. Your team is responsible for running various events. Each event, depending on its nature, runs for varied lengths. Your company policy is such that you charge a flat amount for each event your team is managing (irrespective of the duration a particular event). The size of the team that you are running is such that your team can manage to run one event at a particular time i.e. your company is unable to run multiple events at a particular time. More formally, if there are two events *i* and *j*, the events are mutually compatible (i.e. you can select both *i* and *j*) if $s_i \geqslant f_j$ or $s_j \geqslant f_i$ where s_i and f_i are the start and finish time of the event *i*.

You are required to select events that your team is going to manage so that you can maximize the profit for your company.

The following table shows some candidate events for your company to manage for a particular day. Find out which events would you select such that you can maximize the profit for your company. Note that you can select events only if they are compatible i.e. they do not have overlapping running time. Also note that there can be multiple possibilities for maximizing the profit. You need to find one set of events only

i	1	2	3	4	5	6	7	8	9	10
s_i	3	2	1	5	7	8	6	3	9	8
f_i	7	6	4	7	8	11	9	9	10	11

2 Suppose you have written a text file using the characters *a, b, c, d* and *e* only. The following table shows the frequency of occurrence of each of these characters in the text file you have written.

Characters	a	b	c	d	e
Frequency	100	30	20	40	60

Suppose you want to compress the file using Huffman coding. Find the codewords for each characters if you are using Huffman coding to compress the text file. Show your workings. Find the file size of the compressed file. Show your calculation