Program: BS (SE)   Examination: **SESSIONAL-I**
Semester: Fall-2021   Total Marks: 40, Weightage: **15**
Time Allowed: **01 hour**   Date: 20 / 10 / 2021
Course: Probability & Statistics (MT2005)   Instructor: Osama Sohrab

NOTE: ATTEMPT ALL PROBLEMS.

Problem # 01   Marks =10

(a) There are 20 computers in a store. Among them, 15 are brand new and 5 are refurbished. Six computers are purchased for a student lab. From the first look, they are indistinguishable, so the six computers are selected at random. Compute the probability that among the chosen computers, two are refurbished.

(b) If n people are present in a room, then what is the probability that no two of them will celebrate their birthday on the same day of the year?

Problem # 02   Marks =10

(a) In an experiment to study the relationship of hypertension and smoking habits, the following data are collected for **180** individuals:

	Nonsmokers	Moderate Smokers	Heavy Smokers
H	21	36	30
NH	48	26	19

where **H** and **NH** in the table stand for Hypertension and Nonhypertension, respectively. If one of these individuals is selected at random, find the probability that the person is experiencing hypertension, given that the person is a heavy smoker.

(b) What information does the **"odds of an event"** tell us about the event? Give example.

Problem # 03   Marks =10

The following data are the blood types of 50 volunteers at a blood plasma donation clinic:

O A O AB A A O O B A O A AB B O O O A B A A O A A O

B A O AB A O O A B A A A O B O O A O A B O AB A O B

(a) Represent these data in a frequency table.

(b) Represent them in a pie chart.

Problem # 04   **Marks =10**

The following stem-and-leaf plot records the diastolic blood pressure of a sample of 30 men.

$$
\begin{array}{c|l}
9 & 3, 5, 8 \\
8 & 6, 7, 8, 9, 9, 9 \\
7 & 0, 1, 2, 2, 4, 5, 5, 6, 7, 8 \\
6 & 0, 1, 2, 2, 3, 4, 5, 5 \\
5 & 4, 6, 8
\end{array}
$$

Find the sample standard deviation and quartiles of the data.

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THE END

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