

NED University of Engineering And Technology
Department of Computer Science and Information Technology
Spring 2024 – First Year Computer Science

CT162 – Discrete Structures

Assignment # 2

Due Date: Monday, June 24, 2024 by 16:00 Hours in Faculty Office

Instructions (Read carefully)

- Handwritten solution on a A4 size paper to be submitted before due date
- Answer questions in the SAME sequence as the questions are given, no need to copy questions
- In case of more than one sheet of paper, each to be numbered and all should be stapled before submission
- First sheet should have your name, roll number, and assignment number clearly mentioned on top
- Late submission would be penalized

Question 1: A particular brand of shirt comes in 12 colors, has a male version and a female version, and comes in three sizes for each sex. How many different types of this shirt are made?

Question 2: How many strings are there of four lowercase letters that have the letter x in them?

Question 3: How many license plates can be made using either three uppercase English letters followed by three digits or four uppercase English letters followed by two digits?

Question 4: In how many ways can a photographer at a wedding arrange 6 people in a row from a group of 10 people, where the bride and the groom are among these 10 people, if

- a) The bride must be in the picture?
- b) Both the bride and groom must be in the picture?
- c) Exactly one of the bride and the groom is in the picture?

Question 5: A bowl contains 10 red balls and 10 blue balls. A woman selects balls at random without looking at them.

- a) How many balls must she select to be sure of having at least three balls of the same color?
- b) How many balls must she select to be sure of having at least three blue balls?

Question 6: How many bit strings of length 12 contain

- a) Exactly three 1s?
- b) At most three 1s?
- c) At least three 1s?
- d) An equal number of 0s and 1s?

Question 7: Suppose that a department contains 10 men and 15 women. How many ways are there to form a committee with six members if it must have more women than men?