SRM Institute of Science and Technology
College of Engineering and Technology
Department of Mathematics
SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu
Academic Year: 2023-2024 (ODD)
Unit II Tutorial sheet - 1

Date: 16/08/2023

Course Code &Title: 18MAB302T-Discrete Mathematics for Engineers
Year & Sem: III/V

Q. No	Questions	Answer Keys
1	In how many ways can 9 boys and 7 girls sit in a row?	2 x 9! x 7!
2	From a club consisting of 6 men and 7 women, in how many ways can we select a committee of 4 men and 4 women?	C(6, 4) x C(7, 4)
3	How many words can be formed with the letters of the word "STATISTICS"?	$\dfrac{10!}{3! \times 3! \times 2!}$
4.	How many ways 8 boys and 8 girls can seat around a circular table such that no two girls can seat together?	$8! \times 7!$
5.	There are 3 piles of identical red, blue and green balls, where each pile contains at least 10 balls. In how many ways can 10 ball be selected (a) if there is no restriction? (b) if at least one red ball must be selected? (c) if exactly one red ball be selected? (d) if at most one red ball is selected?	(a) C (12, 10) (b) C (11, 9) (c) C (10, 9) (d) C (11, 10) + C (10, 9)
6.	If there are 5 points inside a square of side length 2, prove that two of the points are within a distance of √2 of each other.	
7.	Of any points chosen within an equilateral triangle whose sides are of length 1, show that two are within a distance of 1/ 3 of each other.	
8.	Find the number of integers between 1 to 250 both inclusive that are not divisible by any of 2, 3, 5 and 7.	57
9.	A man walked for 10 hrs and covered a total distance of 45 km. It is known that he walks 6 km in the first hour and 3 km in the last hour. Show that he must have walked at least 9km within a certain period of 2 consecutive hours.	
10.	Find the number of integers between 1 to 10000 both inclusive which are neither a perfect square nor a perfect cube?	9883