**Quiz 3**

**Name: ID:**

**Question 1**

Seven women and nine men are on the mathematics club at a school.

1. How many ways are there to choose a president, vice president, secretary, and treasurer of the club, where no person can hold more than one position?

[2 marks]

1. How many ways are there to select a committee of **FIVE (5)** members of the club if at least one woman must be on the committee?

[3 marks]

1. How many ways are there to select a committee of **FIVE (5)** members of the club if at least one woman and at least one man must be on the committee?

[3 marks]

**Question 2**

Given set A = {1, 2, 3, 4}. R is a relation on A, given as below:

R = {(1,2),(2,1),(2,2),(2,3), (2,4), (3,3),(3,4), (4,1),}

1. Change the above set R into digraph representation

[4 mark]

1. Change the above set R into matrix representation, MR.

[4 mark]

1. Consider MR in (b). Get the in-degree and out-degree for each of the element.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vertex  | 1 | 2 | 3 | 4 |
| In-degree |  |  |  |  |
| Out-degree |  |  |  |  |

[4 mark]