Mathematics UTS midterm exam 2023, prepared by Michael Marchenko

1. How many subsets are there in a set of T elements?

2. Give truth tables of NOT, AND, OR and their arithmetic equivalents.

3. Give expression of implication through NOT, AND, OR.

4. Compare truth tables of implication, conversion, inversion, contraposition.

5. Calculate P(T,L). In how many ways you can write k?

6. Solve the simultaneous linear equations. Do the matrix operations.

7. Rotate vector (m10, m20) by a degrees anticlockwise.

8. Find HCD and LCM of e+4 and L+4.Calculate the largest prime number.

9. Convert T to e+2and L+2counting systems.Give prime factorization of s.

10. Give the histogram of tossing L+2 fair coins, the first e+3 digits of π.

11. Find the equation for the sequence: 1, 4, 9, 16, 25, 36, 49, …

12. Solve the Graceful Graph Problem for *(e+3)* vertices.