

**Problem 1**

(a)

(i)

Correct.

(ii)

Correct, slightly different approach (use indicator variables instead of Markov's inequality).

(iii)

Correct.

(b)

Correct, although different ways of explaining why average distance goes to 1.

**Problem 2**

(a)

Correct.

(b)

Correct, different approach in solving.

(c)

(i)

Correct, different way of thinking about it.

(ii)

Correct.

**Problem 3**

(a)

Correct.

**Problem 4**

(a)

Correct.

(c)

Correct.