**Quiz (2) stat 324**

**Student name:**

**Student number:**

**Serial number:**

Q1. A missile detection system has a probability of 0.90 of detecting a missile attack. If 4 detection systems are installed in the same area and operate independently, then

(a) The probability that at least two systems detect an attack is

(A) 0.9963 (B) 0.9477 (C) 0.0037 (D) 0.0523 (E) 0.5477

(b) The average (mean) number of systems detect an attack is

(A) 3.6 (B) 2.0 (C) 0.36 (D) 2.5 (E) 4.0

Q2. The average life of an industrial machine is 6 years, with a standard deviation of 1 year. Assume the life of such machines follows approximately a normal distribution. A random sample of 4 of such machines is selected. The sample mean life of the machines in the sample is *X*.

(1) The sample mean has a mean equals to:

(A) 5 (B) 6 (C) 7 (D) 8

(2) The sample mean has a variance equals to:

(A) 1 (B) 0.5 (C) 0.25 (D) 0.75

(3) P($\overbar{X}$≤ 5.5)

(A) 0.4602 (B) 0.8413 (C) 0.1587 (D) 0.5398

(4) If P($\overbar{X }$> a) =1492.0, then the numerical value of *a* is:

(A) 0.8508 (B) 1.04 (C) 6.52 (D) 0.2

Best of luck

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