Student ID:_____: Name:_____

FOIT- Probability and Statistics (Revision Practice Task Sheet 01)

Ch# 6,7

Question 1

i. Suppose *X* has a normal distribution with mean 25 and standard deviation five. Between what values of *x* do 68% of the values lie?

ii. Suppose X has a normal distribution with mean 25 and standard deviation five. Between what values of x do 95% of the values lie?

iii. Suppose X has a normal distribution with mean 25 and standard deviation five. Between what values of x do 99% of the values lie?

Question 2

The final exam scores in a statistics class were normally distributed with a mean of 63 and a standard deviation of five.

a. Find the probability that a randomly selected student scored more than 65 on the exam.

b. Find the probability that a randomly selected student scored less than 85.

c. Find the probability that a randomly selected student scored between 62 and 84

Question 3

Two thousand students took an exam. The scores on the exam have an approximate normal distribution with a mean $\mu = 81$ points and standard deviation $\sigma = 15$ points.

a. Calculate the first- and third-quartile scores for this exam.

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b. The middle 50% of the exam scores are between what two values?

c. Find the 80th percentile for the scores for this exam.

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Question 4

a). Suppose $X \sim N(8, 1)$. What value of x has a z-score of –2.25?

b). Suppose $X \sim N(2, 3)$. What value of x has a z-score of –0.67?

c). Suppose $X \sim N(4, 2)$. What value of x is 1.5 standard deviations to the left of the mean?

d). Suppose $X \sim N(4, 2)$. What value of x is two standard deviations to the right of the mean?

e). Suppose $X \sim N(12, 6)$. What is the z-score of $x = 2$?

f). Suppose $X \sim N(9, 3)$. What is the z-score of $x = 9$?

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Question 5

An unknown distribution has a mean of 45 and a standard deviation of eight. Samples of size *n* = 30 are drawn randomly from the population.

a) Find the probability that the sample mean is less than 42.

b) $P(\bar{x} \geq 44)$

c) $P(42 < Sample\ mean < 50)$

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