CSE 455/555 Spring 2013 Quiz 8 of 14 Jason J. Corso, jcorso@buffalo.edu, SUNY Buffalo

Name:

ID#:

Section: 455 or 555

2	8	10

Directions – *The quiz is closed book/notes. You have 10 minutes to complete it; use this paper only.*

Problem 1: Recall (2pts) (Answer in one sentence only.)

What is the role of bandwidth/window width in kernel density estimation?

Problem 2: Work (8 pts) (Show all derivations/work and explain.)

Suppose that we have a dataset $\mathbf{X} = \{0, 1, 1, 1, 2, 3, 4, 4\}$.

1. Estimate the probability $p(x = 1)$ using histogram of bin-width of 1

2. Estimate the probability $p(x = 1)$ using the following kernel function, assume the bandwith parameter $h = 2$.

$$k(t) = \begin{cases} 1 - |t| & \text{if } |t| \leq 1 \\ 0 & \text{otherwise} \end{cases}$$