Name: _____   USC ID: _____

INF 551 – Spring 2016

Quiz 3: External sorting (10 points)

10 minutes

Consider sorting a file with **103** pages using **5** buffer pages in the main memory. Show the number and size of runs output by each pass (including sorting and merging). Assume sorting and merging utilizes all of the 5 buffer pages. Note that some runs may have different sizes from others.

Answer:

Pass 0: $\lceil 103/5 \rceil$=21 sorted runs of 5 pages each (last run is only 3 pages)

Pass 1: $\lceil 21/4 \rceil$=6 sorted runs of 20 pages each (last run is only 3 pages)

Pass 2: $\lceil 6/4 \rceil$=2 sorted runs of 80 pages and 23 pages

Pass 3: Sorted file of 103 pages