CS 351 - FALL'11 - SECTION #2 SOLUTIONS OF QUIZ #2

Quiz Date: 19 October 2011

n = 50,000 records
R = 400 bytes
B = 2400 bytes
btt = 0.5 ms
ebt = 0.6 ms
r = 5 ms
s = 10 ms

a) Find Tf.

   Tf = (s+r) + (ebt)*(b/2)
   since (s+r) is so small, neglect it
   Tf = (ebt)*(b/2)

   b = n*R/B = 50,000 * 400 / 2400 = 50,000/6means 8,334 blocks

   Tf = (0.6) * (8,334/2) = ~2500 ms   (with (s+r) = 2500 + 15 = 2515 ms)

b) 40% of the records are deleted. Find Ty.

   Ty = (b*ebt) +[(n/Bfr)*ebt]

   50,000*4/10 = 20,000 records are deleted. 30,000 records remain.
   Bfr = B/R = 2400/400 = 6

   Ty = (8,334*0.6) + [(30,000/6)*0.6] = 5,000 + 3,000 = 8,000 ms