Question 7 (10 marks)

Consider two relations *R(id,x,y)* and *S(rid,a,b,c)*, with b_R = 100 and b_S = 500, and a join operation on these two tables:

```
select * from R join S on (R.id = S.rid)
```

Assume that each *R* tuple joins with exactly one *S* tuple, and that any hash functions used distribute the tuples uniformly.

Ignoring the cost of writing the final output (the joined tuples), describe how each of the following joins would occur and calculate the number of reads and writes that would occur in evaluating them:

a. using *simple* hash join with 10 memory buffers

b. using *hybrid* hash join with 20 memory buffers, and holding one bucket of *R* in memory

Show all working.

Instructions:

- Type you
- Submit via: **`give cs9315 sample_q7`**
  or via: Webcms3 > exams > Sample Exa Submission

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