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CS 692 Capstone Exam Algorithms Fall 2018: Choose any 2 of the 3 problems.

3) For each function with input argument *n*, determine the asymptotic number of "fundamental operations" that will be executed. Note that `fc` and `fd` are recursive. Choose each answer from among the following. You do not need to explain your choices.

(1) $(\log n)$ (n) $(n \log n)$ (n^2) $(n \quad n)$ (n^3) (2^n) $(n!)$

a)
```
void fa(int n) {
  for(i = n; i > 0; i = i/2)
    Perform 1 fundamental operation;
  //endfor i
}
```

b)
```
void fb(int n) {
  for(i = 1; i <= n; i++) {
    for(j = 1; j < n; j++)
      Perform 1 fundamental operation;
    //endfor j
    for(k = 1; k <= i; k++)
```

CS 692 Capstone Exam Systems Fall 2018

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3) There are 3 standard goals to the 2-process mutual exclusion problem:

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