You may not use any internet devices. You will be graded on functionality – but good style saves time and helps graders understand what you were attempting. You have 110 minutes. We hope this exam is an exciting journey.

**Note:** Only work in this answer booklet will be graded. The backs of pages are available as space for each problem as well.

First Name: __________________________________________

Last Name: __________________________________________

SUNET ID (part before @stanford.edu): ____________________

By signing below, I commit to the letter and spirit of the honor code. I agree not to access any unauthorized resources or swap to any other applications for the duration of the exam.

____________________________________________________

*Sign here*
Problem 1A
Problem 1C
Problem 1D
Problem 2

// write expression 1 here (remaining part on next page)
// write 0 or more lines here
Problem 3A

#define DEFAULT_CAPACITY 5

void *filter(void *base, int nelems, int elem_size_bytes, int *new_nelems, bool (*select_fn)(void *)) {

    // your code here

}
Problem 3B

bool select_large_ints(void *ptr) {
    // your code here
Problem 3C (main function on next page)

bool select_valid_dna_strands(void *ptr) {
    // your code here
int main(int argc, char *argv[]) {
    char *dna_strands[] = {
        "ACTG",
        "AA",
        "ACTGWW",
        "aCTG",
        "ACCCC",
        ""
    };

    int nelems = sizeof(dna_strands) /
        sizeof(dna_strands[0]);

    /* use filter along with select_valid_dna_strands to
     * make an array of dna_strands' values which are valid,
     * and print each of its elements. Specifically,
     * it should print all but the "AA", "ACTGWW", "aCTG"
     * and "".
     */

    // your code here
Problem 4A

unsigned int both_free(unsigned int schedule_one,
                        unsigned int schedule_two) {
                          // your code here
Problem 4B

unsigned int at_least_one_free(unsigned int schedule_one,
                               unsigned int schedule_two) {

    // your code here
Problem 4C

bool free_for_duration(unsigned int schedule, int start, int end) {

    // your code here