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 180 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 1B
Problem 1C
Problem 1D
Problem 2A

bool insert_sorted(void *base, int nelems, int elem_size_bytes,
                    void *elem_to_insert, int (*cmp_fn)(void *, void *)) {
    // your code here
Problem 2B
int compare_ints(void *a, void *b) {
    // your code here
Problem 3A
// Replace/fill in in the blanks below

int foo(int n, char *input) {
    int x = strlen(_____________);
    int sum = x + ______________;

    for (int i = __________; __________; __________) {
        sum += __________________;
    }

    if (________________________) {
        input[_______________] = '\0';
        sum = _________________;
    }

    return ________________;
}
Problem 3B
Problem 3C
Problem 3D
Problem 4A
Problem 4B
Problem 5A

```c
void set_header_status(block_header *header, int status) {
    // your implementation here
```
Problem 5B

void* get_payload(block_header *header) {
    // your implementation here
Problem 5C

void set_previous_free_ptr(block_header *header1,
block_header *prev) {
  // your implementation here
void set_next_free_ptr(block_header *header1, block_header *prev) {
    // your implementation here
Problem 5D
void add_temp_block_to_freelist(block_header *header) {
    // your implementation here
Problem 5E
void *mytalloc(size_t requested_size) {
    // your implementation here