

EECE.2160: ECE Application Programming

Summer 2018

Lecture 15: Key Questions

June 28, 2018

QUESTIONS:

1. Describe how to read and print hexadecimal values.
2. Explain the `malloc()` function.
3. Explain the use of type casting, and why it is necessary with the allocation functions.
4. Explain the `calloc()` function.
5. Explain the `realloc()` function.
6. Explain how `free()` is used to deallocate memory.
7. What are the common pitfalls of dynamic memory allocation?

EXAMPLES:

1. What does the following program print?

```
void main() {
    int *arr;
    int n, i;

    n = 7;
    arr = (int *)calloc(n, sizeof(int));
    for (i = 0; i < n; i++)
        printf("%d ", arr[i]);
    printf("\n");

    n = 3;
    arr = (int *)realloc(arr, n * sizeof(int));
    for (i = 0; i < n; i++) {
        arr[i] = i * i;
        printf("%d ", arr[i]);
    }

    n = 6;
    arr = (int *)realloc(arr, n * sizeof(int));
    for (i = 0; i < n; i++) {
        arr[i] = 10 - i;
        printf("%d ", arr[i]);
    }

    free(arr);
}
```