ENEE 150 – Midterm 1 Practice

Fall 2025 — Aman Garg

Name: _____
UID: _____
Instructions: Answer all questions. Show your work for number conversions. For coding, write neatly within the boxes. Partial credit will be awarded.

1. (10 points) **Number Systems**
   Convert the following:
   (a) Binary 110101 to decimal and hex.

   (b) Decimal 245 to binary and octal.

   (c) Hex $3F$ to decimal and binary.

2. (15 points) **Procedural Programming**
   Write a function that computes the greatest common divisor. For example gcd(10, 100) should return the integer 10.

   Function header:

```
int gcd(int a, int b);
```

3. (20 points) **Functional Decomposition**
   Write a program broken into three functions: `read_array()`, `compute_average()`, and `print_result()`. Use them in `main()` to read integers, compute the average, and print it.

   Function headers:

```
void read_array(int arr[], int n);
double compute_average(int arr[], int n);
void print_result(double avg);
```

4. (15 points) **Debugging and Testing**
   Find and fix the two bugs in this code(list line, and replacement of line)

```
int count_evens(int arr[], int n) {
    int count;
    for (int i = 0; i <= n; i++) {
        if (arr[i] % 2 = 0) {
            count++;
        }
    }
    return count;
}
```

5. (20 points) **Pointers and Strings**
   Write a function that reverses a string in place using pointers only.

   Function header:

```
void reverse_string(char *str);
```