1. This exercise is meant to be started during the class meeting and completed individually outside class.

   List the members of your group below. Underline your name.

2. Explain what the following C program does. In particular, clearly state and explain, as precisely as possible, its output and the relation between the input and output.

```c
#include <stdio.h>
#include <stdint.h>   // for uint32_t
#include <inttypes.h> // for newer printf formats

uint32_t hotpo_i(uint32_t n) {
  printf("%" PRIu32 "\n", n);
  while (n > 1) {
    if (n % 2 == 0) n /= 2;
    else n = 3 * n + 1;
    printf("%" PRIu32 "\n", n);
  }
  return n;
}

int main() {
  uint32_t init_n;
  for (int i = 0; i < 3; i++) {
    scanf("%" PRIu32, &init_n);
    hotpo_i(init_n);
  }
  return 0;
}
```

3. Provide a RISC-V Assembly Language program, assuming a RARS(M) environment, that corresponds to the program of Question 2 as closely as possible. Briefly explain the key portions of the program.

4. Provide the machine code (text and data segments) corresponding to the program of Question 3. Produce the code by hand first, then compare with the results using RARS(M).