1. What is the output of the following program?

    ```
    #include <stdio.h>
    main()
    {
        float a[10];
        printf("%d", sizeof(a));
    }
    ```

    Answer: 40 ; 10 times 4 (size of a float)

    How do you print the number of elements in the array using a combination of sizeof(…) function calls?

    Answer:
            printf("%d", sizeof(a)/sizeof(float));   OR   printf("%d", sizeof(a)/sizeof(a[0]));

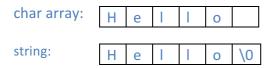2. Given the array declaration

        int myArray[] = {0, 2, 4, 6, 8, 10};

    What is the value of myArray[myArray[2]] ? Explain briefly.

    Answer: 8 ; myArray[myArray[2]] = myArray[4] = 8;

3. What is the difference between a character array and a string? Show how the word Hello is stored as a character array and also a string.

    Answer: A string is an array of characters with the null character \0 after the last character.

    char array:

H	e	l	l	o	

    string:

H	e	l	l	o	\0

4. What does the following program print?

    ```
    #include <stdio.h>
      int main()
      {
        char s[]="Hello, World";
        printf(">>%s<<\n",s);
        printf(">>%15s<<\n",s);
        printf(">>%-15s<<\n",s);
        printf(">>%.4s<<\n",s);
        printf(">>%-15.4s<<\n",s);
        printf(">>%15.4s<<\n",s);
        return 0;
      }
    ```

Answer: This program produces the output:

>>Hello,•World<<
>>•••Hello,•World<<
>>Hello,•World•••<<
>>Hell<<
>>Hell•••••••••<<
>>•••••••••Hell<<

where • represents a blank space.

5. What is the problem if we declare a string and initialize it as follows:

    char str[5] = "Hello";

    Answer: The null character \0 is not stored, as the array is not large enough.

6. Following from Q5, how do we declare an array that is just large enough to store a string?

    Answer: char str[] = "Hello";
               // this will reserve just enough space to store the word Hello plus the null char \0

7. Consider the following two variables:

    char s6[ ] = "hello";
    char *s7 = "hello";

    To change the "h" in "hello" to uppercase, we can do:

        s6[0] = 'H';

    What would the outcome of the following assignment statement be?

        s7[0] = 'H';

    Answer: runtime error → Bus error: 10

    What would be the correct way to change the 'h' in s7 to uppercase?

    Answer: s7 = "Hello";