1. Fill the blanks in the definitions below with the appropriate terms.

_________________________ is the process of translating programs written in a high level language to the machine language.

_________________________ typically refers to executing a program on different inputs to check if the program produces the expected results.

_________________________ is the process of translating a high level specification of an algorithm into a program written in a programming language.

_________________________ is the process of removing errors from a program.

_________________________ is the process of creating an executable file from multiple object files.

2.

(a) What are the five main components of a computer?

(b) What are the three main kinds of program errors?

(c) What kind of errors does the compiler discover?

(d) What are the steps of the software life cycle?

(e) What is a byte and what is a bit?
3.

(a) Declare and initialize two integer variables named count and sum to zero.

(b) Declare and initialize two variables, one int and one double. Initialize the int variable to two and initialize the double variable to three and a half.

4. Given the following declarations, show the result of evaluating the following expressions (write True or False to denote the result).

```java
int x = 3, y = 5; double z = 6.0;
```

<table>
<thead>
<tr>
<th>Expression</th>
<th>Result? (True or False)</th>
</tr>
</thead>
<tbody>
<tr>
<td>x + y - 2.5 &lt; z</td>
<td></td>
</tr>
<tr>
<td>y + x * 2 / 4 &gt; z</td>
<td></td>
</tr>
<tr>
<td>!(y + x &gt;= z - x + 3)</td>
<td></td>
</tr>
<tr>
<td>y &gt; z &amp;&amp; x + 2 == y</td>
<td></td>
</tr>
<tr>
<td>y - 1 - 1 + x == z++</td>
<td></td>
</tr>
</tbody>
</table>

5. For each of the program segments listed below, indicate if they contain a syntax error or not (write Yes if compiler will report an error and No otherwise).

```java
int int1, double_2 = 1;
int 1x;
int i, j, x; if (i != j) x=x+1;
int x, y; if (x==2) x=0; else x=1; else y=x;
int i = 1, sum = 0; while (i <= 10) { sum += i; i++; }
```
6. (a) Write an output statement that prints the string "Enter a value :".

(b) Write an input statement that places a value in the variable input_value.

(c) Write an output statement that produces a newline.

7. Write an if-else statement that outputs the word Big if the value of the variable score is greater than 1000 and Small if the value of score is at most 1000. The variables are of type int.

8. Write an if-else statement that outputs the word Ready provided that either the value of the variable temperature is greater than or equal to 160, or the value of the variable time is greater than or equal to 90, or both. Otherwise, the if-else statement outputs the word Cooking. The variables are of type int.
9. Show the output of this code:

```cpp
int x = 15;
while ( x > 0 )
{
    cout << x << endl;
    x = x - 4;
}
```

10. What will be the values of the variables i, j, c1 and c2 at the end of the following program segment?

```cpp
int i = 0, j = 0, c1 = 0, c2 = 0;
while (i < 4)
{
    c1++;
    j = 0;
    while (j < i)
    {
        c2++;
        j++;
    }
    i++;
}
```

// what are the values of i, j, c1 and c2 here?