Given these assignments: \( a = 5, \ b = 2, \) and \( s = 1.5 \) write the result type and value of the following expressions. Circle ERROR if the expression will result in a run time error.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Type:</th>
<th>Value:</th>
<th>ERROR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>( a \div b )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( b ** a )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( \text{float}(a) / b )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( a % b )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( s \div a )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( a =&gt; b )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( a == b )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( a \div b )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
<tr>
<td>( a + b * a )</td>
<td></td>
<td></td>
<td>ERROR</td>
</tr>
</tbody>
</table>

### 2 Conversion between binary, decimal and hexadecimal numbers:

a. Convert the binary number 11101011 to decimal: ____________________

b. Convert the decimal number 151 to binary: ___________________

c. Convert the binary number 10011100 to hexadecimal: _______________

d. Convert the hexadecimal number 5F to binary: ________________ (please show all 8 binary digits)

e. Convert the decimal number 90 to hexadecimal: ____________________
3 What is the output from the following code if the user enters 75?
```python
c = int(input('Enter a value: '))
if c > 100:
    print("A")
elif c > 50:
    if c % 5 == 0 and not(c % 10 == 0):
        print("B")
    elif c % 5 == 0:
        print("C")
    else:
        print("D")
if c > 20:
    print("E")
else:
    print("F")
```
Your answer:

4 What is the output from the following code?
```python
acc = 0
for i in range(5,15,5):
    var = i;
    while var > 0:
        var //= 2;
        acc += var;
    print("i=",i," var=",var);
print("acc=",acc);
```
Your answer:
5 Write a program that prompts for radius length. Your program should calculate and print the resulting circumference (float) and area (float) of a circle with that radius. You must also check that the given radius is positive. Otherwise, print an error message and do not carry out the calculations. Use $\pi = 3.14$ for this question rather than importing the math module.

**Sample Outputs 1:**
Enter a radius: 3
Circumference: 18.84
Area: 28.26

**Sample Outputs 2:**
Enter a radius: -1
ERROR: Radius must be positive

**Code:**

6 Write a program that prompts a row number and print out the pattern in a zig-zag way. If the leading number of the row is odd, the row displays numbers in a decreasing sequence, starting from the leading number to 1. If the leading number of the row is even, the row displays numbers in an increasing sequence, starting from 1 to the leading number. Assume the input is always a valid positive integer.

**Sample Output 1:**
Enter # of row: 5
  5 4 3 2 1
  1 2 3 4
  3 2 1
  1 2
  1
Sample Output 2:

Enter # of row: 4

4 3 2 1
3 2 1
1 2
1

Code:

7. Given a positive integer number, write a program to print the total number of times each digit. Write a program that prompts the user to enter a sequence of positive integers where each integer represents how many hours the employee worked in a day this week. When the user enters a negative integer, there are no more days to input. However, since there is a maximum of 7 days in a week, so at most you can take inputs for 7 times. The program should then print out (a) the employee's bonus pay for
that week; (b) the employee's overtime pay for that week; and (c) the employee's total pay for that week.

The rules governing an employee's pay are as follows:

a. Each employee has an hourly pay rate, which we will call payRate. An employee is paid payRate dollars for every hour worked. payRate is a variable defined for you in advance; you should not define it or read it in.

b. If an employee works more than 10 hours in a single day, they must be paid an additional bonus of $13 for each such day.

c. If an employee works a total of more than 40 hours in a single week, any hours over 40 will be paid at an overtime rate of one-and-a-half times their usual hourly wage. Hours under 40 will be paid at the usual rate. For example, if an employee has a normal rate of $10 per hour and works 45 hours in a single week, they will be paid $10 x 40 = $400 for the first 40 hours, then an additional overtime of 1.5 x $10 x 5 = $75 for the remaining 5 hours, for a total pay of $475.

The output in your calculations should be rounded to 2 decimal places if the output is more than 2 decimal places.

(In the following examples, payRate is 10.275.)

Sample outputs:

<table>
<thead>
<tr>
<th>Enter the hour worked:</th>
<th>Enter the hour worked:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>-1</td>
<td>11</td>
</tr>
<tr>
<td>Bonus Pay: $0.0</td>
<td>Bonus Pay: $13.0</td>
</tr>
<tr>
<td>Overtime Pay: $0.0</td>
<td>Overtime Pay: $0.0</td>
</tr>
<tr>
<td>Total Pay: $102.75</td>
<td>Total Pay: $331.53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enter the hour worked:</th>
<th>Enter the hour worked:</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>-1</td>
<td>5</td>
</tr>
<tr>
<td>Bonus Pay</td>
<td>$26.0</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>Overtime Pay</td>
<td>$154.12</td>
</tr>
<tr>
<td>Total Pay</td>
<td>$591.12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bonus Pay</th>
<th>$0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overtime Pay</td>
<td>$0.0</td>
</tr>
<tr>
<td>Total Pay</td>
<td>$359.62</td>
</tr>
</tbody>
</table>

**Code:**

```