**1)** Fill in the blanks of the text below.  There are 9 blanks and each blank is worth one mark.  This question is scored out of 8; a maximum of 9 will be awarded.

Computers store and use data with the _____ binary _____

numeric system. Numbers represented using the system have a _____ base _____

of two. For example, the number 1011 has a value of 11 in decimal.

Operating systems needs at least one _____ process _____ to

execute a program. The CPU can only work with one of these at a time. To make it

appear that programs are running simultaneously, the _____ scheduler _____

allocates tiny amounts of CPU time to each and switches between them.

Assembly language was introduced as a "shorthand" language which works at a level

above _____ machine language _____.  An "interpreter" program called the

_____ assembler _____ translates Assembly instructions into several of

these commands.  _____ High-level _____ languages such as C, C++ or Java, go

one step beyond Assembly. Each line of these languages is translated into several lines

of Assembly code.

ENIAC was the first electronic computer built in the late 1940s. It contained 17,468

_____ vacuum tubes _____ which were physically large, generated lots of

heat and required lots of energy. These have been replaced in modern computers by

transistors, millions of which are contained on a single ____ integrated circuit/chip ____.

2) Examine the following small Python programs.   Determine the values of the variables or the output to the screen at the end of each program's execution.  Use quotation marks around string values and decimals for floats.  There are 9 variables or outputs and each is worth one mark.  This question is scored out of 8; a maximum of 9 will be awarded.

```
x = 0b10
y = x**(x * 2)**0.5
```

x: _____ 2 _____

y: _____ 4.0 _____

```
a = 15 // 4
b = (15 - -8) % 10
c = a * 2 % 10
```

a: _____ 3 _____

b: _____ 3 _____

c: _____ 6 _____

```
print("What" + "odd", \
    "spacing", \
    sep="-", end="!")
```

output:

_____ Whatodd-spacing! _____

```
msg = "{0} is {0:.1f}"
msg = msg.format(2.347)
```

msg:

_____ 2.347 is 2.3 _____

```
val = 6
value = 2

def doExp(exp):
    value = val**exp
    return value

def main():
    global value
    val = doExp(value)

main()
```

val: _____6_____

value: _____2_____

**3. a)** There are 24 hours in a day and 60 minutes in an hour.

Write a function `printTotalMinutes(…)` that has two parameters: one for the number of days and one for the number of hours. This function must calculate the total minutes from these values and print it to the screen as follows:

```
The total number of minutes is 1560
```

This question is scored out of 4.

```
def printTotalMinutes(days, hours):
    minutes = (days * 24) + hours
    minutes = minutes * 60
    print("The total number of minutes is", minutes)
```

b) Write a `main()` function that asks the user for a number of hours and a number of minutes. Use these values to call the function `printTotalMinutes(…)`. Here is the sample output:

```
What is the number of days? 1
What is the number of hours? 2

The total number of minutes is 1560
```

This question is scored out of 4.

```python
def main():
    days = int(input("What is the number of days? "))
    hours = int(input("What is the number of hours? "))
    print()
    printTotalMinutes(days, hours)
```