Assignment_day1.txt

Basic Questions :

Q1. What are components of a computer ?
    CPU, Processor, RAM

Q2. Which CPU are you using in you laptop / mobile / PC ?
    I5 gen 4

Q3. What is size of RAM in your PC ?
    12Gb

Q4. Read Python documentation from
https://docs.python.org/3/tutorial/index.html

Q5. What are different implementations of Python ? Which implementation
we are using ?
We are using CPython

Q6. Who created python ? in which year ? where ?
    Python was created by **Guido van Rossum**, and first released on
    February 20, 1991

Q7. What is PVM ?
    The PVM is **the main runtime engine of Python**. It is an interpreter
    that reads and executes the bytecode file, line by line. It creates a
    virtual environment on OS when it executes a program

Q8. Python is platform independent or not ? Which platforms python can
run ?
    Python is platform independent, python can run on windows,linux,
    macOS

Q9. Why python is platform independent ? What makes it platform independent ?

In python program is converted into bytecode, and bytecode is platform independent it can run on any platform

Q10. WAP to Print "Hello IACSD" and write comment describing author of the program and date created

```
print("Hello IACSD")
#author : swaraj
```

Q11. Find working of various functions (min 7) from math library of python which is provided as standard library.

https://docs.python.org/3/library/math.html

You can also try it yourself.

Ex.

```
import math
print(math.factorial(4))
print(math.sin(90))
print(math.sqrt(90))
math.ceil()
math.fact()
math.gcd()
```

Q12. Open spyder IDE and create a python program (.py file) to print Hello world!. Run the program and check the put on console.

Q13.WAP using spyder IDE. Import math library and print the gcd, lcm of two numbers.

```
Import math
math.gcd(36,20)
math.lcm(30,35)
```

Q14. WAP using spyder IDE. Use math library. Print number of options you have, when you are given 5 different characters and you need to select 3 of them without repeatitions. (find permutations)

```
print(math.perm(5,3)
```

Q15. WAP using spyder IDE. Use math library. Print number of options you have to select 20 students out of 60 without repeatitions. (Obviously here order doesn't matter, so find combinations)

```
print(math.comb(60,20))
```

Q16. WAP using spyder IDE. Use math library. Try to find log of zero. Which error is given ?

Math domain error

Also try to find square root of any negative number. What error is give?

math domain error

Q17. WAP to create a variable v1 and store any number. Find the square root of that number by using v1 in math.sqrt() function.

Math domain error

Q18. Why python is considered as slow compared to C, C++ ?
Refer : https://stackoverflow.com/questions/3033329/why-are-python-programs-often-slower-than-the-equivalent-program-written-in-c-or

Q19. Check where .pyc files are stored after you run the program for Q15.

Advanced Assignments
Q. What are different extensions supported by python?
What is meaning of .py , .pyc, .pyz, .pyo, .pyd , etc extensions supported by python ?

Q. Check what happens if we print math.sqrt without any parnthesis ? What happens if we print math.sqrt() without passing any number to it?

Q. Can we convert .pyc file to python code? how?
Q. What is Global Interpreter Lock (GIL)?
Q. Which language is used to write python interpreter?
Q. What is advantage of garbage collector over manual memory management by the programmer ?
Q. When variable is created what is on stack and what part is on heap ?
Q. What is garbage collector ? How reference counting works ?