Course Code:	Course Name:	Exam:
CSC217 – Sec A	*AI with Python*	*Midterm*

1- **Respond to the following questions** *(5 pts. each)*

a- Name all AI types based on capabilities

b- Explain Artificial Super Intelligence (ASI)

c- Give 3 Advantages of AI

d- Talk about how AI can "Enhance Life" with example

2- Write a Python program that accept from input the height (in meter) and convert it into centimeter and to inches also (using 2 methods getCM and getInch) **that return the converted values.** *(20 pts.)*

Note: 1m = 100 cm = 39.3701 inches (")

Sample Run

```
Enter your height in m: 1.75
Height in cm is 175 cm and in inches is 68.89764"
```

3- Write a Python program that takes a string "Hello World" then search for a special character (taking from input) if exists and how many times, elsewhere it should print a not found message. *(25 pts.)*

Sample Run

```
Enter any character: o
o is found 2 times
```

Bonus question: The word "times" (in output) should be "time" in singular count

4- **Write a Python program that can calculate the bonus to salary, and the total to give after providing the old salary**. *(35 pts.)*

The bonus must be applied based on the data given in following table:

Salary in $	Bonus in $
<=150	35
>150 and <=300	20%
>300 and <=500	15%
>500	10%

That is, when the salary is less than 150$, then there will be 35$ bonus to apply. When the salary is greater than 150$ and less than or equal to 300$, then there will be 20% bonus to apply, and so on.

Sample Run 1:
Enter old salary: ***100.5***
Your bonus is ***35.0$***
Your new salary is ***135.5$ (100.5+35.0)***

Sample Run 2:
Enter old salary: ***210.8***
Your bonus is ***42.16$***
Your new salary is ***252.96.0$ (210.8.0+42.16)***

Sample Run 3:
Enter old salary: ***511***
Your bonus is ***51.1$***
Your new salary is ***562.1$ (511.0+51.1)***

Question 2:

```
def getCM(h):
    return h * 100

def getINCH(h):
    return h * 39.3701

height = input("Enter your height in m: ")

try:
    height = float(height)

    toCM = getCM(height)

    toINCH = getINCH(height)

    print("Height in cm is {} cm and in inches is
          {}\"".format(toCM, toINCH))

except ValueError:
    print("Must enter a number")
```

Question 3:

```
def search(string, char):
    count = 0
    for c in string:
        if c == char:
            count += 1
    return count

def times(c):
    if c>1: return "times"
    elif c==1: return "time"

string = "Hello World"

char = input("Enter any character: ")

count = search(string, char)

if count > 0:
    print(char, " is found", count, times(count))
else:
    print(char, " is not found")
```

Question 4:

```
def calculate_bonus(salary):
    if salary <= 150:
        bonus = 35
    elif salary <= 300:
        bonus = salary * 0.2
    elif salary <= 500:
        bonus = salary * 0.15
    else:
        bonus = salary * 0.1
    return bonus

old_salary = input("Enter old salary: ")

try:
    old_salary = float(old_salary)
    bonus = calculate_bonus(old_salary)
    new_salary = old_salary + bonus

    print("Your bonus is {}$".format(bonus))
    print("Your new salary is {}$
({}+{})".format(new_salary, old_salary,bonus))

except ValueError:
    Print("Enter only numbers")
```