Graded Assignment 1

Q1)

```
def fun(S):
  p=0
  S=S.lower()
  for i  in range(len(S)):
      if S[i] not in S[:i}:
          p+=1
  return p
```

S is a non -empty string of English Letters without any space. What fun(S) will return after execution of the above code?

A1) Total number of distinct letters in the string S.

Q2) Which of the following is/are valid reason(s) for NameError exception?

- [ ] Variable is not defined.
- [ ] Calling a function before declaration.
- [ ] Misspelled bulit-in functions name
- [ ] Variables are defined globally in the program.

A2)

- [x] Variable is not defined.
- [x] Calling a function before declaration.
- [x] Misspelled bulit-in functions name.

Q3)

```
def f(n):
    s = 0
    for i in range(2,n):
        if n % i == 0 and i % 2 == 1:
            s = s + 1
    return(s)
```

What is f(60) - f(59), given the definition of f above?

A3) **3**

Function f(n) returns the number of odd factors of n between 1 and n (1 and n are not included). Here f(60) return 3(3, 5, 15) and f(59) return 0 because it is a prime number. So the value of f(60) - f(59) is 3.

Q4)

```
x = 1
while True:
    if x % 5 = = 0:
        break
    print(x, end = ' ')
    x + = 1
```

What will be the output of the above code-snippet?

A4) Syntax error

Q5)

```
class Person:
    def __init__(self, name):
        self.name = name
    def say_hi(self):
        print('Hello, ', self.name)

p = Person('Good morning')
p.say_hi()
```

What will be the output of the above code-snippet?

A5) Hello, Good morning

Q6)

```
a = [1, 2, 3]
try:
    print ("Second element = %d" %(a[1]))
    print ("Fourth element = %d" %(a[3]))
except:
    print ("An error occurred")
```

What will be the output of the above code-snippet?

A6)

Second element = 2
An error occurred

Q7)

```
def special3Bad(L):
  try:
      if L[0] % L[1] == 0 and L[1] != 0:
        if L[0] / (L[1] ** 2 - L[2]) == 0:
          return True
      return False
  except ZeroDivisionError:
    print('ZeroDivisionError')
  except:
    print('Some other exception occurred')
  else:
    print('No exception occurred')
special3Bad(L)
```

Given above is a function that checks whether a list satisfies some property. There is an error in this function. Select the list(s) L =[n1, n2, n3], where n1, n2 and n3 are all integers,for which special3Bad(L) produces a ZeroDivisonError exception. [MSQ]

A7)

- L =[4, 2, 4]
- L =[8, 4, 16]
- L =[48, 6, 36]

Q8)

```
def isSymmetricBad(L):
  try:
    while len(L) > 0:
      if L.pop(0) != L.pop(-1):
          return False
      return True
  except IndexError:
    print('IndexError')
  except:
    print('Some other exception occurred')
  else:
    print('No exception occurred')
isSymmetricBad(L)
```

Given above is a function that checks whether a list is a palindrome. There is an error in this function. Select the list(s) L =[n1,n2,....,n2,n1], for which isSymmetricBad(L) produces an IndexError exception.[MSQ]

A8)

- ☑ L =[1,2,3,4,3,2,1]
- ☑ L =[1,1,1,1,1,1,1]
- ☑ L =[8]

Q9)

```
def gcd(m,n):
    (a,b) = (max(m,n), min(m,n))
    if a % b == 0:
        return(b)
    else:
        return(gcd(b,a % b))
print(gcd(24,130))
```

How many times gcd() function will be called?

Note: Ignore the first call given in the code.

A9) **3**

After first call, gcd(24, 10) -> gcd(10, 4) -> gcd(4, 2) -> return(2). Hence, gcd function called itself 3 times recursively.

Q10)

```
class Enrollment:
    count = 0
    def __init__(self,n,c):
        self.name = n
        self.course = c
        Enrollment.count += 1
    def display(self):
        print(self.name)
        print(self.course)
```

Which of the following option(s) is /are correct about the given code? [MSQ]

A10)

- ☑ name and course are object variables, and count is a class variable.
- ☑ count represents the number of objects created for class Enrollment.
