Total No. of Questions – [3] Total No. of Printed Pages: 4

G.R. No.	

PAPER CODE	U111 – 202B(REG)

MAY 2022 (INSEM+ ENDSEM) EXAM
F.Y. B. TECH. (SEMESTER - II)
COURSE NAME: PYTHON FOR ENGINEERS
COURSE CODE: CS10202B
(PATTERN 2020)

Time: [2Hr] [Max. Marks: 60]

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data where ever required**

Q1 Solve the following[30]

i. [2]
```
var1 = 1
var2 = 2
var3 = "3"
print(var1 + var2 + var3)
```
a)6 b)33
c)123) d) Error. Mixing operators between numbers and strings are not supported

ii. [2]
```
var = "James" * 2 * 3
print(var)
```
a)JamesJamesJamesJamesJamesJames b)JamesJamesJamesJamesJames
c)Error: invalid syntax d) "James" * 2 * 3

iii. [2]
```
sampleList = ["Jon", "Kelly", "Jessa"]
sampleList.append(2, "Scott")
print(sampleList)
```
a) The program executed with errors b)['Jon', 'Kelly', 'Scott', 'Jessa']
c) ['Jon', 'Kelly', 'Jessa', 'Scott'] d) ['Jon', 'Scott', 'Kelly', 'Jessa']

iv. [2]
```
def calculate (num1, num2=4):
  res = num1 * num2
  print(res)
calculate(5, 6)
```
a) 20 b) The program executed with errors c) 30 d) 24

v. [2]
```
salary = 8000
def printSalary():
  salary = 12000
  print("Salary:", salary)
printSalary()
print("Salary:", salary)
```
a) Salary: 12000 Salary: 8000 b) Salary: 8000 Salary: 12000
c) The program failed with errors d) Salary: 8000 Salary: 8000

vi. [2]

```
for l in 'Jhon':
  if l == 'o':
    pass
  print(l, end=", ")
```

a) J, h, n, b b)J, h, o, n c) h, n d) J, h, n, o

vii. [2]

```
x = 0
a = 0
b = -5
if a > 0:
  if b < 0:
    x = x + 5
  elif a > 5:
    x = x + 4
  else:
    x = x + 3
else:
  x = x + 2
print(x)
```

a)2 b)0 c)3 d)4

viii. [2]

```
var = 10
for i in range(10):
  for j in range(2, 10, 1):
    if var % 2 == 0:
      continue
      var += 1
  var+=1
else:
  var+=1
print(var)
```

a)20 b)21 c)10 d)30

ix. [2]

```
x = 0
for i in range(10):
 for j in range(-1, -10, -1):
  x += 1
  print(x)
```

a) 99 b)90 c)100 d)101

x. [2]

```
str1 = 'Welcome'
print (str1[:6] + ' PYnative')
```

a)Welcome PYnative b)WelcomPYnative
c)Welcom PYnative d)WelcomePYnative

xi. [2]

```
str1 = "PYnative"
print(str1[1:4], str1[:5], str1[4:], str1[0:-1], str1[:-1])
```

a) PYn PYnat ive PYnativ vitanYP b) Yna PYnat tive PYnativevitanYP
c) PYn PYnat ive vitanYP d) Yna PYnat tive PYnativ PYnativ

xii. [2]

```
def add(a, b):
  return a+5, b+5
result = add(3, 2)
print(result)
```

a)15 b) 8 c)(8,7) d) syntax error

xiii. dict1 = {"name": "Mike", "salary": 8000} [2]
```
temp = dict1.get("age")
print(temp)
```
a) KeyError: 'age' b) None c)Mike d)8000

xiv. [2]
```
def outer_fun(a, b):
    def inner_fun(c, d):
        return c + d
    return inner_fun(a, b)
    return a
result = outer_fun(5, 10)
print(result)
```
a) 5 b) 15 c)15,5 d) error

xv. [2]
```
sampleList = [10, 20, 30, 40]
del sampleList[0:6]
print(sampleList)
```
a) [] b) list index out of range c) [10, 20] d)[30,40]

Q2 Solve any three out of four

a. Write a program to create a 5X2 integer array from a range between 100 to 200 such that the difference between each element is 10. [5]

b. Write a NumPy program to convert the values of Centigrade degrees into Fahrenheit degrees and vice versa. Values are stored into a NumPy array. [5]
Sample Array:
Values in Fahrenheit degrees [0, 12, 45.21, 34, 99.91]
Values in Centigrade degrees [-17.78, -11.11, 7.34, 1.11, 37.73, 0.0]

c. How to create a numpy array sequence given only the starting point, length and the step? [5]
Create a numpy array of length 10, starting from 5 and has a step of 3 between consecutive numbers.
length = 10
start = 5
step = 3

d. Write a program to plot Cosine wave in subplot. Rotate it with 180 degree and plot in vertical subplot. [5]

Q3 Solve any three out of four

a. Accept five hobbies from the user and write in a file "hobby.txt" (each hobby should write in separate line) without using write() function. [5]

b. Write a program to read the frequency of alphabet 'a' in file. [5]
Input:
Positive thinking refers to a belief or mental attitude which makes us think that good things will happen eventually and our efforts will pay off sooner or later. It is the opposite of negative thinking which makes our mind full of stress and fear. Thus, an essay on positive thinking will show us how it reinforces thoughts like optimism and hope and works wonders.

c. Write syntax to open the file in following mode. Where the file pointer present when we open file in the following mode [5]
   1. Read mode
   2. Write mode
   3. Append mode

d. Write a program to accept Roll number and name of five students from the user and write on a file "roll.txt" [5]