



B.E/B.TECH DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Second Semester

COMMON TO ALL BRANCHES EXCEPT AI&DS

U18CSI2201: Python Programming

COURSE OUTCOMES

CO1: Classify and make use of Python programming elements to solve and debug simple logical problems. (K4,S3)

CO2: Experiment with the various control statements in Python. (K3,S2)

CO3: Develop Python programs using functions and strings. (K3,S2)

CO4: Analyze a problem and use appropriate data structures to solve it. (K4,S3)

CO5: Develop Python programs to implement various file operations and exception handling. (K3,S2)

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the following range function with the corresponding output.

CO2 [K₂]

| Expression | Output |
|-------------------|---------------------|
| A. range (5) | i. [1, -1, -3] |
| B. range(0,0) | ii. [-1, 4] |
| C. range(1,-5,-2) | iii. [] |
| D. range(-1,5,5) | iv. [0, 1, 2, 3, 4] |

| | A | B | C | D |
|----|-----|-----|----|-----|
| a) | iv | iii | ii | i |
| b) | iii | iv | ii | i |
| c) | iv | iii | i | ii |
| d) | iv | i | ii | iii |

2. Predict the output for the following code.

CO3 [K₂]

```
S="Welcome to KCT"
```

```
L=S.split()
```

```
S=",".join(L)
```

```
print(L,S,sep="\n")
```

- | | |
|---|---|
| a) ['Welcome', 'to', 'KCT'] Welcome,to,KCT | b) {'Welcome', 'to', 'KCT'} Welcome,to,KCT |
| c) ('Welcome', 'to', 'KCT') Welcome,to,KCT | d) ['Welcome', 'to', 'KCT'] Welcome to KCT |

3. Predict the output for the following code. CO2 [K₂]

```
i = 0
while i <= 5:
    i += 1
    if i % 2 == 0:
        break
    print("*", end= " ")
```

- | | |
|--------------|----------------------------|
| a) * | b) ** |
| c) * * * * * | d) Nothing will be printed |

4. What is the output of the statement: `print(eval("3**1**2"))` CO1 [K₂]

- | | |
|------|------|
| a) 3 | b) 8 |
| c) 9 | d) 6 |

5. Assertion (A): Set elements can be accessed using an index value. CO4 [K₂]

Reason (R): Set is an unordered collection of unique elements

- | | |
|---|---|
| a) Both A and R are Individually true and R is the correct explanation of A | b) Both A and R are Individually true but R is not the correct explanation of A |
| c) A is true but R is false | d) A is false but R is true |

6. Identify the incorrect statement(s) used for opening a file CO5 [K₂]

1. `f=open("sample.txt", "r")`
2. `f=open("sample.txt", "w")`
3. `f=open("sample.txt", "+r")`
4. `f=open("sample.txt", "a")`

- | | |
|-----------|--------|
| a) 3 only | b) 1,2 |
| c) 4 only | d) 3,4 |

7. Arrange the following based on the operator precedence in Python. CO1 [K₂]

- 1) Addition
- 2) Parentheses
- 3) Exponential
- 4) Multiplication

14. Write a recursion function to find the factorial of a given number. CO3 [K₂]
15. Explain the lambda function with an example. CO3 [K₂]
16. Compare list and tuple data structures. CO4 [K₂]
17. Consider the list with L1 = [10, 20,-5,35,-2,3,5,-50,100]. Create another list L2 using list comprehension which consists of only positive integer elements present in L1. CO4 [K₃]
18. Identify the appropriate Data structure for the following: CO4 [K₄]
- An ordered mixed collection of data in one place with the ability to be changed or extended.
 - A unique collection of elements.
 - A fixed collection of elements of any data type
 - Fast lookup for the data, based on a custom key
19. Illustrate the use seek() function in file operation. CO5 [K₂]
20. Enumerate the steps to create a module and include it in a Python source file. CO5 [K₂]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 350 words)

21. a) Illustrate the logical, membership, and identity operators in Python with a suitable example. (7) CO1 [K₂]
- b) A retail store provides a discount for the customers based on the purchase amount as shown below. (7) CO2 [K₃]

| Purchase Amount | Discount |
|-----------------|----------|
| Above 5000 | 5 % |
| 3001 to 5000 | 4 % |
| 1000 to 3000 | 3 % |
| Below 1000 | 1 % |

Develop a Python program to calculate the amount to be paid by the customer after the deduction of the discount from the original bill amount.

22. a) Write a program to read the password from a user. If the user types the correct password (Python) then display the message, “Welcome to Python Programming”. (6) CO2 [K₃]
Note: Only three attempts are allowed to enter the correct password.
- b) Explain the following methods of passing formal arguments to a function with an appropriate example with code (8) CO3 [K₂]
- Default arguments
 - Keyword arguments
23. a) Consider the string str1= “Python Programming” and perform the following operations using appropriate string functions and methods (6) CO3 [K₃]
- Find the first occurrence of the letter ‘o’
 - Replace the substring “Python” with ”C”
 - Convert the given string to uppercase
 - Find the number of words in a string

5. Print the string in reverse
 6. Find the total number of characters in a string
- b) Illustrate the following list methods with an example with code. (8) CO4 [K₂]
1. append()
 2. index()
 3. count()
 4. copy()
24. a) Illustrate the use of the zip() and zip(*) functions with suitable examples. (6) CO4 [K₂]
- b) Develop a Python program to search the element in a list using a binary search algorithm. (8) CO4 [K₃]
25. a) Consider the employees of the XYZ company. (6) CO4 [K₃]
Designers = {"Geetha", "Saran", "Arjun", "Bharth", "Raja", "Banu"}
Developers = {"Arjun", "Banu", "Raja", "Seetha", "Gokul"}
Write a Python program to perform the following using set operations.
- i) Employees working as designers as well as developers
 - ii) Employees working as designers or developers
 - iii) Employees working as designers but not developers
 - iv) Employees working in either one but not in both
 - v) Check whether designers and developers are different groups of employees
- b) Write a user defined function char_frequency() that takes a string as a parameter and returns a frequency of characters contained in it as a dictionary. (8) CO4 [K₃]
26. a) Write a program that reads text from a file and appends it to another file. (7) CO5 [K₃]
- b) Define Exception. Explain how the exception is handled in Python. (7) CO5 [K₂]
