Course Name: Python Programming (BCSG1001)

Course Outcome

CO1- Python basics and built-in rich python dataset

CO2- Data type conversions and logical analysis for developing core concepts

CO3- Understanding of looping, control flow statements, concept of iterators for Python

CO4- Building Concepts and details of string and data collection types (list, tuple, dictionary) with methods.

CO5- Learning functional programming and simple anonymous function with map (), filter () in Python.

CO6- Python Standard Modules and working with ndarray, random, math.

CO7- Opening, Reading/ Writing and Finally Closing a text file in Python.

CO8- Python Exceptions Handling Mechanism

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**End Term Examination, Odd Semester 2022-23**

**B. Tech AIML/CCV/CSF/DA/BT/IIOT 1st Year, 1stSemester**

**BCSG1001 Python Programming**

**Time: 3 Hours Maximum Marks: 50**

Instruction for students:

1. Read question paper carefully.

2. Don't over write.

3. Write the complete code in one place neatly.

4. Maintain appropriate indentation while writing program in python if needed.

5. Commenting code is optional.

**Section – A**

*Attempt* ***All****Questions* 4 X 5 = 20 Marks

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| --- | --- | --- | --- | --- | --- |
| No. | Detail of Question | Marks | CO | BL | KL |
| 1 | Discuss the use of following functions with suitable examples   1. bin() 2. oct() 3. hex() 4. int() | 1x4=4 | CO1 | R | D |
| 2 | Print the following pattern using while loop only.  \* \* \* \* \* \* \* \* \* \*  \* \* \* \* \* \* \* \*  \* \* \* \* \* \*  \* \* \* \*  \* \*  \* \*  \* \* \* \*  \* \* \* \* \* \*  \* \* \* \* \* \* \* \*  \* \* \* \* \* \* \* \* \* \* | 4 | CO4 | U | F |
| 3 | Write a Python Script to check if a given list is monotonic or not.  Suppose the following input is supplied to the program:  6 5 4 4  Then, the output should be:  True  Note:-   1. An list A is monotone increasing if for all i <= j, **A[i] <= A[j]**. 2. A list A is monotone decreasing if for all i <= j, **A[i] >= A[j]**.   **Return Type:** Boolean value, “**True**” if the given array A is monotonic else return “**False**” (without quotes). | 4 | CO3 | E | D |
| 4 | Discuss the scope of a variable in Python. What is the use of the nonlocal and global keyword? Explain with the suitable examples. | 4 | CO5 | R | U |
| 5 | Discuss difference between syntax error and Exceptions with suitable example. | 4 | CO8 | An | C |

**Section – B**

*Attempt* ***All*** *Questions* 3 X 5 = 15 Marks

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| No. | Detail of Question | Marks | CO | BL | KL |
| 6 | Write a program to create function func1() to accept a variable length of arguments and print their value.  **Note:**  Create a function in such a way that we can pass any number of arguments to this function and the function should process them and display each argument’s value.  Read: variable length of arguments in functions  **Function call:**  # call function with 3 arguments   1. func1(20, 40, 60)   # call function with 2 arguments   1. func1(80, 100)   **Expected Output:**   1. Printing values   20 40 60   1. Printing values   80 100 | 3 | CO8 | U | C |
| 7 | **Write a Python program to convert them into a dictionary in a way that item from list1 is the key and item from list2 is the value**  keys = ['Ten', 'Twenty', 'Thirty']  values = [10, 20, 30]  **Expected output:** {'Ten': 10, 'Twenty': 20, 'Thirty': 30} | 3 | CO4 | E | U |
| 8 | Write a Python program to find the intersection of two given arrays using Lambda function Original arrays: [1, 2, 3, 5, 7, 8, 9, 10] [1, 2, 4, 8, 9] Intersection of the said arrays will be [1, 2, 8, 9] | 3 | CO5 | R | F |
| 9 | Explain the Exception **ValueError** with suitable example.  Fill in the blanks with most appropriate choice in the function reciprocal(dt) body below so that function can calculate the reciprocal with values accordingly.  >>> reciprocal (2)  0.5  >>> reciprocal(0)  0  >>> reciprocal ('hello ')  'Not valid data'  Choices (choose any two words and complete the function below)  1. ValueError  2. IndexError  3. ZeroDivisionError  4. NameError  **def** reciprocal(dt):  try:  try:  val = int(dt)  except \_\_\_\_\_\_\_\_\_\_:  return 'Not valid data'  else:  return 1 / val  except \_\_\_\_\_\_\_\_\_\_\_:  return dt | 3 | CO5 | An | PC |
| 10 | Write a user define a function named fibo(n) to print Fibonacci series where the value of n is no of terms to be printed. | 3 | CO2 | C | PC |

**Section – C**

*Attempt* ***All*** *Questions* 5 X 3 = 15 Marks

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| --- | --- | --- | --- | --- | --- |
| No. | Detail of Question | Marks | CO | BL | KL |
| 11 | 1. Write a Python program to find the largest number among the two given numbers using lambda function. 2. Write a Python program to filter out the even elements from the given list using filter function. | 5 | CO6 | E | DI |
| 12 | Write a Python script to read the text file ‘info.txt’ and print the total number of character, number of word, spaces and lines present in the file. | 5 | CO6 | C | PC |
| 13 | **Task for Random Lottery Pick.**  Generate 100 random unique lottery tickets and pick two lucky tickets from it as a 1st and 2nd winners.  **Note you must adhere to the following conditions:**   1. The lottery number must be 10 digits long. 2. All 100 ticket number must be unique. | 5 | CO6 | An | D |

CO – Course Outcome, BL – Abbreviation for Bloom’s Taxonomy Level (R-Remember, U-Understand, A-Apply, An-Analyze, E-Evaluate, C-Create), KL – Abbreviation for Knowledge Level (F-Factual, C-Conceptual, P-Procedural, M-Metacognitive). However, For Engg. Courses in addition to F, C, P & M include D-Fundamental Design Principles, S-Criteria and Specifications, PC-Practical Constraints, DI- Design Instrumentalities