MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

SECOND SEMESTER EXAMINATION

(2024 ADMISSION ONWARDS)

MG2DSCCSC100 - Python Programming

Duration: 1.5 hrs Maximum Marks: 50

Students should attempt at least one question from each Course Outcome (CO) to enhance their overall outcome attainability.

Part A

Very Short Answer Questions

(Answer all questions, each question carries 2 marks.)

1. Name any three key features of Python. [U] [CO1]
2. Identify the output of the following Python expression:

   print(3 * "Python" + "3") [U] [CO1]
3. Which Python data type would you use to store a collection of unique items? [U] [CO3]
4. What is the difference between break and continue statements in Python? [U] [CO2]
5. Rewrite the following for loop as a while loop and ensure it produces the same output:
   fori in range(1, 6):
   print(i * "*") [A] [CO2]

[5 x 2 = 10]

Part B

Short Answer Questions

*(Answer **5** out of 7 questions, each question carries **5** marks.)*

6. Define type conversion in Python. List any four built-in functions used for type conversion. [K] [CO1]
7. Write a Python program that accepts a number as input and prints whether it is positive, negative, or zero using if-elif-else. [A] [CO2]
8. Explain the concept of slicing in Python lists with an example. [U] [CO3]
9. Describe the working of a for loop with an example that prints the first 10 even numbers. [U] [CO2]
10. Write a Python function to calculate and return the factorial of a given number. [A] [CO3]
11. Discuss the difference between Lists and Tuples with examples. [U] [CO3]

12. Write a Python script to open a file, write a few lines of text into it, and then read its content. [A] [CO3]

[5 x 5 = 25]

Part C

Essay Questions

*(Answer **1** out of 2 questions, each question carries **15** marks.)*

13. Explain the concept of dictionaries in Python. Discuss various dictionary methods with examples. How is the del statement used to delete dictionary elements? Provide relevant code snippets to support your explanation. [U] [CO3]

14. Explain the concept of sets in Python. How do you create a set? Discuss various set methods with examples. Provide relevant code snippets to demonstrate set operations. [U] [CO3]

[1 x 15 = 15]

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS)

SECOND SEMESTER EXAMINATION

(2024 ADMISSION ONWARDS)

MG2MDCCSC100- Data Visualization using PYTHON

Duration: 1 Hr. Maximum Marks: 35

Students should attempt at least one question from each Course Outcome (CO) to enhance their overall outcome attainability.

PART A

Very Short Answer Questions

Answer All Questions

Each Question Carries 2 Marks

1. List four common types of data visualization techniques. [CO1]
2. What is Seaborn, and why is it used for data visualization? [CO1]
3. Name libraries that provide interactive plotting [CO2]
4. Find out some options to deploy the dashboards [CO2]
5. Recall the command used to install Plotly in a Jupyter Notebook? [CO2]

(5* 2 = 10 marks)

PART B

Short Answer Questions

Answer 5 out of 7 questions. Each Question Carries 5 Marks

6. Differentiate static plotting & Interactive plotting with one example [CO1]
7. Write a short note on plotly express. Explain how to install and implement the module in python with code. [CO1]
8. Express some techniques for narrating a Story through Data Visuals [CO2]
9. What is Seaborn? Explain its purpose in data visualization. [CO1]
10. How is Seaborn different from Matplotlib? List three key advantages. [CO1]
11. List five different types of plots available in Matplotlib and their uses. [CO2]
12. Write a brief explanation of how Matplotlib works with basic syntax examples? [CO2]

(5* 5 = 25 marks)

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MGU-UGP (HONOURS)
SECOND SEMESTER EXAMINATION
(2024 ADMISSION ONWARDS)

MG2MDCCSC101- MASTERING SPREADSHEETS

Duration: 1 hr. Maximum Marks: 35

Students should attempt at least one question from each Course Outcome (CO) to enhance their overall outcome attainability.

Part A
MCQ (15*1=15 Marks)
(Answer all questions, each question carries 1 mark.)

1. Identify the purpose of using the dollar sign ($) in a spread sheet formula?
   a) To perform arithmetic operations
   b) To format a cell
   c) To create a chart
   d) To reference a cell absolutely [K][CO1]
2. How can spreadsheets be used as a processing tool?
   a) By creating and running SQL queries
   b) By using functions and formulas to perform calculations
   c) By designing logos
   d) By writing lengthy paragraphs [U][CO1]
3. Which feature in a spreadsheet helps in filling a series of numbers, dates, or text automatically?
   a) AutoSum
   b) Fill Handle
   c) Named Ranges
   d) Conditional Formatting [K][CO1]
4. Which of the following data types can be entered into a spreadsheet cell?
   a) Text
   b) Numbers
   c) Dates
   d) All of the above [K][CO1]
5. What is the intersection of a row and a column in a spread sheet called?
   a) A field
   b) A table
   c) A cell
   d) A chart [K][CO1]

6. How can a specific set of cells be defined with a name for easy reference in formulas?
    a) AutoSum
    b) Fill Handle
    c) Named Ranges
    d) Conditional Formatting [U][CO1]
7. Which option allows searching and replacing specific content in a spreadsheet?
    a) Tools->Options
    b) Edit->Find & Replace
    c) View->Replace content
    d) Data->Find Data [K][CO1]
8. What is the purpose of the 'Advanced Filter' feature in a spreadsheet?
    a) Filter data using multiple conditions
    b) Apply simple filters only
    c) Automatically sum selected values
    d) Merge multiple cells into one [U][CO1]
9. What will the following formula return if cell A1 contains 50?
    =IF(A1>30,"Pass","Fail")
    a) Pass
    b) Fail
    c) 50
    d) Error [A][CO2]
10. Which of the following formula is used to calculate the average of the numbers in the range B2:B10?
    a) =AVERAGE (B2:B10)
    b) =SUM (B2:B10)/COUNT (B2:B10)
    c) Both a and b
    d) None of the above [A][CO2]
11. What type of chart is best suited for showing trends over time?
    a) Pie chart
    b) Line chart
    c) Bar chart
    d) Scatter Plot [U][CO2]
12. Can the IF function be used to test multiple conditions?
    a) Yes, using the AND and OR functions
    b) Yes, using the IFS function
    c) No, it can only test one condition
    d) No, it can only test two conditions [U][CO2]
13. Which of the following keyboard shortcuts can be used to activate the Auto sum feature?
    a) Ctrl+A
    b) Ctrl+S
    c) Alt+=
    d) Ctrl+Z [K][CO2]

14. Which of the following functions is used to extract only the first three characters from each employee's ID (e.g., "EMP123" → "EMP")?
    a) LEFT()
    b) RIGHT()
    c) MID()
    d) CONCATENATE() [A][CO2]
15. A company wants to analyze sales data by grouping it based on regions and product categories. Which spreadsheet feature would be the most efficient for this task?
    a) VLOOKUP
    b) Conditional Formatting
    c) Pivot Table
    d) AutoSum [U][CO2]

[15 x 1 = 15]

Part B

Short Answer Questions

*(Answer4 out of 6 questions, each question carries **5** marks.)*

16. Differentiate between absolute and relative cell addressing with an example. [U] [CO1]
17. A student database in a spreadsheet contains the fields: Student Name, Roll Number, Date of Birth, Marks Obtained, and Result (Pass/Fail). Identify the appropriate data types for each field and justify the choices. [U] [CO1]
18. Explain Conditional Formatting in spreadsheets. How does it help in data visualization? [U] [CO1]
19. List and briefly describe any three categories of functions in spreadsheets with examples. [U] [CO2]
20. List different types of charts available in a spreadsheet and explain how they help in data representation and comparison with suitable examples. [U] [CO2]
21. What is a Macro in a spreadsheet? Explain the steps to create, edit, and run a Macro. [U] [CO2]

[4 x 5 = 20]