2204M194

Candidate's Seat No :_____

Integ. M.Sc DS Semester-4 Examination

CC-215

Python for Data Science

April-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Instructions: All questions are compulsory. Use of non-programmable scientific calculator is allowed.

Q.1 **(a)** What are the building blocks of OOPs? Explain in detail.

(b) What is Polymorphism in python OOPs? Write the difference between static polymorphism and dynamic polymorphism.

OR

(a) What is Inheritance in python OOPs? Explain its types.

(b) What is Encapsulation in python OOPs? Explain access modifiers.

Q.2 **(a)** What is geometry manager? Explain its type in detail.

(b) You are a software developer at a retail company. The company is facing challenges in managing its inventory due to manual data entry errors. They have asked you to develop a Python GUI application to streamline the inventory management process. How would you design this application to ensure accuracy and ease of use? What features would you include to prevent data entry errors? Explain each step with features you use.

OR

(a) What is widget? Explain any 5 types in detail.

(b) A hospital has a GUI application for managing patient records. The current system is outdated and leads to frequent data entry errors. How would you design a Python GUI application to improve the accuracy and efficiency of data entry? What features would you include to enhance user experience and data reliability? Remember, the key is to design an application that is user-friendly and minimizes the possibility of errors during data entry.

Q.3 **(a)** What is Pandas? Explain the different types of Data Structures in Pandas.

(b) What is NumPy? What are the advantages of NumPy over regular Python lists?

OR

(a) What is Pandas? What are the core features of Pandas?

(b) What is SciPy? What is the difference between NumPy and SciPy Library.

Q.4 **(a)** What steps will you follow in a Machine Learning problem? Explain each step by step.

(b) What is TensorFlow? Explain the types of Tensors.

OR

(a) Explain the three working components of TensorFlow architecture?

(b) What are some of the key features of Scikit-Learn that makes it a good choice for machine learning Projects?

Q.5 Attempt any **SEVEN** out of **TWELVE:**

(1) What is the difference between a class and an object?

(2) Define: Polymorphism

(3) What are the access modifiers? Name its types.

What is Padx and Pady in Tkinter?

What is Python Tkinter grid() method and place() method?

Explain the difference between a Tkinter Frame and a Labelframe?

What NumPy stack function do? Name type of stack functions available in NumPy.

What is the difference between Series and DataFrame?

What pandas groupby function do? Explain with relevant example.

What is convex hull? Explain with figure.

What is Scikit – learn?

What is tensor in TensorFlow?