3rd Sem.
Branch : Artificial Intelligence & Machine Learning
Sub.: Data Science using Python

Time : 3 Hrs.   M.M. : 60

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory.   (6x1=6)

Q.1   How does the Python interpreter execute a program?   (CO1)

   a) Directly from the source code

   b) By interpreting it line-by-line.

   c) By compiling it into machine code

   d) By converting it into bytecode and then executing the bytecode.

Q.2   How do you access the second element of a Num Py array arr?   (CO2)

   a) arr[1]   b) arr[2]

   c) arr[0]   d) arr[3]

Q.3   Which of the following cannot be used as a key in a Python dictionary?   (CO1)

   a) A string   b) An integer

   c) A list   d) A tuple

SECTION-D

Note: Long answer questions. Attempt any two questions out of three Questions.   (2x8=16)

Q.23   Describe the concept of object-oriented programming (OOP) in Python. Explain the roles of classes constructors inheritance and overloading with examples.   (CO1)

Q.24   What are the different ways of creating Data Frame in pandas? Explain with examples.   (CO3)

Q.25   How has data science evolved and what impact has it had on various industries?   (CO4)

Q.4 Which stage in a data science project involves cleaning and preparing data for analysis? (CO4)

a) Data Collection   b) Data Exploration

c) Data Wrangling   d) Data Modeling

Q.5 Which method is used to apply a function to each element of a Pandas Series? (CO3)

a) Series Map ()   b) Series apply ()

c) Series.func()   d) Series apply_func()

Q.6 Which library is particularly well suited for data manipulation and analysis is Python?

a) NumPY   b) Pandas

c) Matplotlib   d) Scikit-learn

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Reindexing involves changing the_____and _____ labels of a Data Frame or Series. (CO3)

Q.8 In a Python dictionary, keys must be unique. (Trlue/False) (CO1)

Q.9 What field involves extracting insights from data using scientific methods? (CO4)

Q.10 What is the term for a software application that provides comprehensive facilities for code development and debugging? (CO2)

Q.11 Data Frames in Pandas can be created from dictionaries lists or Num Py arrays. (True/False) (CO3)

Q.12 A _____ is an ordered collection of items in Python, such as strings, lists and tuples. (CO1)

SECTION-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 What are universal functions (Ufuncs) in NumPy? (CO2)

Q.14 How is Data Science applied in various fields? (CO4)

Q.15 How are arithmetic operations handled between Data Frames and Series? (CO3)

Q.16 What are some key libraries used by data scientists in Python? (CO2)

Q.17 What is function application mapping in Pandas? (CO3)

Q.18 What is inheritance in Python, and how is it implemented? (CO1)

Q.19 How is data transformation handled in Pandas? (CO4)

Q.20 What are the stages in a Data Science project? (CO4)

Q.21 Explain the difference between a tuple and a list in Python. (CO1)

Q.22 What methods are used for indexing selection and filtering in Pandas? (CO3)