Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec 2024

EE3ES04 Data Analysis with Python

Programme: B.Tech. Branch/Specialisation: EE

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	Which of these control statements can be used to skip an iteration of a loop? (a) continue (b) break (c) pass (d) return	**1**	01	01, 05	01	01, 02, 03, 04
	ii.	Which keyword is used to check multiple conditions in a Python control statement? (a) else if (b) switch (c) elif (d) case	**1**	01	01, 05	01	01, 02, 03, 04
	iii.	What format is NOT typically used for importing structured data? (a) CSV (b) JSON (c) MP4 (d) Excel	**1**	02	01, 02 05	02	01, 02, 03, 04
	iv.	Which of these is a basic descriptive statistic derived from a dataset? (a) Data visualization (b) Median (c) Predictive accuracy (d) Hypothesis testing	**1**	02	01, 02 05	02	01, 02, 03, 04
	v.	What function is used to create an array in NumPy? (a) array() (b) create_array() (c) make_array() (d) build_array()	**1**	01	01, 05	01	01, 02, 03, 04

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vi.	Which operation splits an array horizontally into equal parts? (a) np.split() (b) np.hsplit() (c) np.vsplit() (d) np.array_split()	**1**	02	01, 02 05	02	01, 02, 03, 04				
vii.	Which method can be used to remove missing values from a list? (a) remove() (b) filter() (c) del() (d) append()	**1**	02	01, 02 05	02	01, 02, 03, 04				
viii.	What operation merges two lists of the same size to form a dictionary? (a) zip() (b) map() (c) append() (d) filter()	**1**	01	01, 05	01	01, 02, 03, 04				
ix.	Which library is most used for creating bar graphs in Python? (a) Seaborn (b) NumPy (c) Matplotlib (d) Pandas	**1**	01	01, 05	01	01, 02, 03, 04				
x.	Which plot is used to visualize the distribution of a single variable? (a) Scatter plot (b) Box plot (c) Bar graph (d) Histogram	**1**	01	01, 05	01	01, 02, 03, 04				
Q.2	i. How to use the various types of functions in python?	**2**	02	01, 02 05	02	01, 02, 03, 04				
	ii. Differentiate between break, continue, and pass statements in Python with examples.	**3**	04	01, 02, 05,	04	01, 02, 03, 04				
	iii. Explain the key features of Python's data structures: lists, dictionaries, sets, and tuples. Provide a use case for each.	**5**	03	01, 02, 05,	03	01, 02, 03, 04				
OR	iv. Discuss the significance of exception handling in Python. Write a code snippet to handle multiple exceptions effectively.	**5**	04	01, 02, 05,	04	01, 02, 03, 04				
Q.3	i. List two techniques to export data after analysis.	**2**	01	01, 05	01	01, 02, 03, 04				
	ii. Describe the process of importing and exporting datasets. Include common file formats and tools used in this process.	**8**	03	01, 02, 05,	03	01, 02, 03, 04				

OR	iii. Compare and contrast structured and unstructured data. Provide examples and explain their significance in data analysis.	**8**	04	01, 02, 05,	04	01, 02, 03, 04				
Q.4	i. What is the significance of statistical operations like mean, median, and std in NumPy?	**3**	02	01, 02 05	02	01, 02, 03, 04				
	ii. Discuss the concept of shape manipulation in NumPy with examples of reshaping, stacking, and splitting arrays.	**7**	03	01, 02, 05,	03	01, 02, 03, 04				
OR	iii. Write a Python program to split a list into equal-sized dataset and provide an explanation of how the splitting works.	**7**	04	01, 02, 05,	04	01, 02, 03, 04				
Q.5	i. How can you find and handle missing values in a Python list manually? Provide an example.	**4**	03	01, 02, 05,	03	01, 02, 03, 04				
	ii. Discuss how nested loops can be used to simulate operations like "stacking" and "splitting" for data stored in a list of lists.	**6**	04	01, 02, 05,	04	01, 02, 03, 04				
OR	iii. What are the basic arithmetic operations supported by Data Frames? Explain how they work with an example involving two Data Frames.	**6**	05	01, 02, 05,	05	01, 02, 03, 04				
Q.6	Attempt any two:									
	i. Describe the steps involved in creating a bar graph using Matplotlib. Include a code example.	**5**	03	01, 02, 05,	03	01, 02, 03, 04				
	ii. Describe how pie charts are used to represent data and mention their limitations.	**5**	04	01, 02, 05,	04	01, 02, 03, 04				
	iii. Explain the importance of exploratory data analysis (EDA) in understanding a dataset.	**5**	02	01, 02 05	02	01, 02, 03, 04				

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Marking Scheme
EE3ES04 (T) Data Analysis With Phython (T)

Q.1	i)	(a) continue		**1**
	ii)	(c) elif		**1**
	iii)	(c) MP4		**1**
	iv)	(b) Median		**1**
	v)	(a) array()		**1**
	vi)	(b) np.hsplit()		**1**
	vii)	(b) filter()		**1**
	viii)	(a) zip()		**1**
	ix)	(c) Matplotlib		**1**
	x)	(d) Histogram		**1**
Q.2	i.	Name of various type of function	-1 mark	**2**
		Use with example	-1 mark	
	ii.	Each difference (1*3)	-3 marks	**3**
	iii.	key features of Python's data structures	-3 marks	**5**
		use of each case program	-2 marks	
OR	iv.	Significance of exception handling	-3 marks	**5**
		Programming code	-2 marks	
Q.3	i.	Name of techniques	-2 marks	**2**
	ii.	Process of importing and exporting datasets	-6 marks	**8**
		Uses of common file formats and tools	-2 marks	
OR	iii.	Comparison	-5 marks	**8**
		Example with their significance	-3 marks	
Q.4	i.	What is the significance of statistical operations like mean, median, and std in NumPy?		**3**
		Each statistical operations	-1 mark	
	ii.	Concept of shape manipulation	-4 marks	**7**
		Example of each array	-3 marks	
OR	iii.	Program to split dataset	-3 marks	**7**
		Explanation of how the splitting	-4 marks	
Q.5	i.	Explanation to find and handle missing values	-3 marks	**4**
		Example	-1 mark	
	ii.	Stacking	-3 marks	**6**
		Splitting	-3 marks	
OR	iii.	Discuss about basic arithmetic operations	-3 marks	**6**
		Example involving two DataFrames	-3 marks	
Q.6		Attempt any two:		
	i.	Steps involved in creating a bar graph	-3 marks	**5**
		Code example	-2 marks	
	ii.	Pie charts are used to represent data	-3 marks	**5**
		Limitations	-2 marks	
	iii.	Importance of exploratory data analysis	-4 marks	**5**
		Code example	-1 mark	

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