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

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec 2024

OE00018 Python Essentials

Programme: B.Tech. Branch/Specialisation: All

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.	In Python 3, what will 5 / 2 output? (a) 2 (b) 2.5 (c) 2.0 (d) Error	**1**	01	1,2,5, 10,11	1	1-4
	ii.	Python is considered- (a) Compiled language (b) Interpreted language (c) Markup language (d) Assembly language	**1**	01	1,2,5, 10,11	1	1-4
	iii.	Which of the following is a mutable data type? (a) tuple (b) string (c) list (d) int	**1**	01	1,2,5, 10,11	1	1-4
	iv.	In Python, the // operator is used for- (a) Exponentiation (b) Modulus (c) Integer division (d) Addition	**1**	01	1,2,5, 10,11	1	1-4
	v.	What keyword is used to define a function in Python? (a) func (b) function (c) def (d) define	**1**	02	1-5,9, 11,12	2	1-4
	vi.	Which function returns a dictionary of the current global symbol table? (a) globals() (b) locals() (c) vars() (d) repr()	**1**	01	1,2,5, 10,11	1	1-4
	vii.	Which in-built function is used to execute dynamically created code? (a) exec() (b) eval() (c) repr() (d) str()	**1**	01	1,2,5, 10,11	1	1-4

P.T.O.

	viii.	What will file.read(5) do when called on a file object? (a) Reads the first 5 characters of the file (b) Reads 5 lines from the file (c) Reads all lines in the file (d) Throws an error	**1**	02	1-5,9, 11,12	2	1-4
	ix.	Which method is used to overload the + operator? (a) __mul__ (b) __add__ (c) __sub__ (d) __div__	**1**	01	1,2,5, 10,11	1	1-4
	x.	What does the following code do? x = [i for i in range(10) if i % 2 == 0] print(x) (a) Prints a list of even numbers from 0 to 9 (b) Prints a list of odd numbers from 0 to 9 (c) Prints numbers from 0 to 9 (d) Prints numbers divisible by 2 and 3	**1**	02	1-5,9, 11,12	2	1-4
Q.2	i.	List any two differences between Python 2 and Python 3.	**2**	01	1,2,5, 10,11	1	1-4
	ii.	What are the basic data types in Python? Explain with examples.	**3**	02	1-5,9, 11,12	2	1-4
	iii.	Demonstrate the use of basic arithmetic operators (+, -, *, /, //, %, **) in Python with a short program.	**5**	03	1-5,9, 11,12	2	1-4
OR	iv.	Discuss the major features of Python with examples.	**5**	02	1-4, 10-12	3	1-4
Q.3	i.	Define Lambda function and give an example of its usage.	**2**	01	1,2,5, 10,11	1	1-4
	ii.	Explain the use of locals() and globals() functions with an example.	**8**	02	1-5,9, 11,12	2	1-4
OR	iii.	Explain recursion with an example to calculate the Fibonacci sequence.	**8**	02	1-5,9, 11,12	2	1-4
Q.4	i.	Differentiate between read() and readlines() methods.	**3**	02	1-5,9, 11,12	2	1-4
	ii.	Write a Python program to append new data to an existing file, then read and display the entire file content.	**7**	03	1-4,6 ,9-12	4	1-4

OR	iii.	Write a program that reads from one file and writes the content to another file in uppercase letters.	**7**	03	1-4, 6,9-12	4	1-4
Q.5	i.	Explain the role of __init__ and __del__ methods in Python classes.	**4**	01	1,2,5, 10,11	1	1-4
	ii.	What is operator overloading in Python? Provide an example.	**6**	02		3	1-4
OR	iii.	Create a Python program demonstrating inheritance, where the Vehicle class is inherited by two subclasses Car and Truck. The Car class should add a method air_conditioning() and the Truck class should add a method load_capacity(). Each class should also override a common method move() to display their specific type of movement. Then, create an instance of both Car and Truck and call their methods to demonstrate the inheritance and method overriding.	**6**	03	1-4, 10-12	3	1-4
Q.6		Attempt any two:					
	i.	Write a program to calculate sum of two digit number from given list- List= [1,44,-32,478,-2,88,356]	**5**	03	1-5,9, 11,12	2	1-4
	ii.	Explain mutable and immutable data types in Python. Provide examples and explain how they differ.	**5**	03	1-4, 10-12	5	1-4
	iii.	What is exception handling in Python? Explain the try, except, else, and finally blocks with an example.	**5**	02	1-4,6 ,9-12	4	1-4

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Marking Scheme
OE00018 Python Essential

Q.1	i)	**b) 2.5**	**1**
	ii)	**b) Interpreted language**	**1**
	iii)	**c) list**	**1**
	iv)	**c) Integer division**	**1**
	v)	**c) def**	**1**
	vi)	**a) globals()**	**1**
	vii)	**a) exec()**	**1**
	viii)	**a) Reads the first 5 characters of the file**	**1**
	ix)	**b) __add__**	**1**
	x)	**a) Prints a list of even numbers from 0 to 9**	**1**

Q.2	i.	List any two differences between Python 2 and Python 3. One Mark for each difference	**2**
	ii.	What are the basic data types in Python? 2 Explain with examples. 1	**3**
	iii.	Demonstrate the use of basic arithmetic operators (+, -, *, /, //, %, **) in Python with a short program.	**5**
OR	iv.	Discuss the major features of Python with examples. One Mark for each feature	**5**

Q.3	i.	Define Lambda function and give an example of its usage.	**2**
	ii.	Explain the use of locals() and globals() functions with an example.	**8**
OR	iii.	Explain recursion with an example to calculate the Fibonacci sequence.	**8**

Q.4	i.	Differentiate between read() and readlines() methods. 1 marks for each difference	**3**
	ii.	Write a Python program to append new data to an existing file, then read and display the entire file content.	**7**
OR	iv	Write a program that reads from one file and writes the content to another file in uppercase letters.	**7**

Q5	i.	Explain the role of __init__ and __del__ methods in Python classes.	**4**
		__init__ 2M __del__ 2M	
	ii.	What is operator overloading in Python? 3M Provide an example. 3M	**6**
OR	iii	Create a Python program demonstrating inheritance, where the Vehicle class is inherited by two subclasses Car and Truck. The Car class should add a method air_conditioning() and the Truck class should add a method load_capacity(). Each class should also override a common method move() to display their specific type of movement. Then, create an instance of both Car and Truck and call their methods to demonstrate the inheritance and method overriding.	**6**

Q.6		Attempt any two:	
	i.	Write a program to calculate sum of two digit number from given list List= [1,44,-32,478,-2,88,356]	**5**
	ii.	Explain mutable and immutable data types in Python. 3M Provide examples and explain how they differ. 2M	**5**
	iii.	What is exception handling in Python? 2M Explain the try, except, else, and finally blocks with an example. 3M	**5**

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