

# Priyadarshini College of Engineering, Nagpur

Sessional Examination (2023-24) Odd Semester

B.Tech. Seventh Semester (AI&DS) (C.B.C.S)

Open Elective III : Python Programming

P. Pages: 2

PCE/KW/23/BEAI&DS-704T

Duration : Three Hours

Max. Marks: 70

Notes:

1. All questions carry marks as indicated.
2. Solve Question 1 or Question 2.
3. Solve Question 3 or Question 4.
4. Solve Question 5 or Question 6.
5. Solve Question 7 or Question 8.
6. Solve Question 9 or Question 10.

Q. No.	Question	CO	BT	Marks
Q1	a) What are the different loop control statements available in Python? Explain with suitable examples.	CO1	2	8
	b) Differentiate between Method Overloading and Method Overriding.	CO1	2	6
OR				
Q2	a) Write Python code to determine whether the given string is a Palindrome or not.	CO1	1	8
	b) Explain the difference between function and module	CO1	2	6
Q3	a) Write short note on (any 3) i. Inheritance ii. Encapsulation iii. Polymorphism iv. Abstraction	CO2	1	6
	b) Write a Python program to create a person class. Include attributes like name, country and date of birth. Implement a method to determine the person's age.	CO2	3	8
OR				
Q4	a) What is the lambda function? Write the characteristics of a lambda function. Explain the same with an example.	CO2	2	4
	b) What do you mean by a constructor? List and describe various constructors used for converting to different data types.	CO2	1	4
	c) Write a Python program to create a class representing a Circle. Include methods to calculate its area and perimeter.	CO2	3	6
Q5	a) Explain the following functions of Numpy library with the help of examples i. max( ) ii. min( ) iii. sum( ) iv. mean( ) v. std( )	CO3	2	5

**b)** Create the following NumPy arrays:

- i. 1-D array called zeros having 10 elements and all the elements are set to zero.
- ii. 1-D array called vowels having the elements 'a', 'e', 'i', 'o' and 'u'.
- iii. 2-D array called ones having 2 rows and 5 columns and all the elements are set to 1 and dtype as int.

CO3 3 9

OR

**Q6 a)** Write difference between Pandas series and NumPy arrays

CO3 1 3

**b)** Explain any 5 attributes of data frames in pandas

CO3 2 5

**c)** Create the following Data Frame Sales containing year wise sales figures for five sales persons in INR. Use the years as column labels, and sales personnames as row labels.

	2014	2015	2016	2017
Ankit	100.5	1200	2000	4000
Nazneen	150.6	1800	5000	5500
Sumit	200.9	2200	4000	6500
Akshada	3000	5000	7000	8000
Shruti	5000	6000	8000	10000

CO3 3 6

**Q7 a)** Write the installation process of flask setup and discuss the advantages of Flask Framework

CO4 1 8

**b)** Explain the following commands

- i. `app.run(host, port, debug, options)`
- ii. `@app.route('/home')`

CO4 2 6

OR

**Q8 a)** Explain the following Flask HTTP methods

- i. GET
- ii. HEAD
- iii. POST
- iv. PUT
- v. DELETE

CO4 2 6

**b)** Design a code to print the table of 10 by Embedding Python statements in HTML

CO4 3 8

**Q9 a)** Explain any one regression algorithm

- i. Simple Linear Regression
- ii. Multiple Linear Regression
- iii. Support Vector Regression
- iv. Random Forest Regression

CO5 2 6

**b)** Differentiate between Supervised and Unsupervised learning

CO5 2 8

OR

**Q10 a)** Explain Naïve Bayes Algorithm along with the example

CO5 2 7

**b)** Differentiate between regression and classification algorithms.

CO5 2 7