Reg. No. : ....

Name : ....

Sixth Semester B.Sc. Degree (C.B.C.S.S.-OBE – Regular/Supplementary/Improvement) Examination, April 2025
(2019 to 2022 Admissions)
DISCIPLINE SPECIFIC ELECTIVE IN PHYSICS
6B14PHY(1) : Python Programming

Time : 3 Hours   Max. Marks : 40

PART – A

Short answer questions, answer **all** questions. **Each** question carries **1** mark.

(6×1=6)

1. What are the two modes of using python ?

2. What is meant by indentation in python ?

3. What is the output of the following program ?
    ```
    for n in range (5):
        print (n*n)
    ```

4. Write any example for the use of elif in python.

5. What do you mean by a module in python ?

6. What is the meaning of assignment statement ?

PART – B

Short essay questions, answer **any 6** questions. **Each** question carries **2** marks.

(6×2=12)

7. Write the syntax of linspace function in numpy module.

8. Explain any two built in functions in python.

9. Discuss any two functions to create arrays in Python.

10. Write a note on matplotlib module.

P.T.O.

11. Write a python program to plot cos x using plot() function.

12. Identify the functional differences of the Compiler and the Interpreter in the context of high-level computer languages.

13. Write a program to check whether a given number is odd or even.

14. List different type of variables in Python.

PART – C

Problems, answer **any 4** questions. **Each** question carries **3** marks.   (4×3=12)

15. Write a program to find the dot product of two given matrices.

16. What do you mean by looping ? Use any looping method to write a program to print the multiplication table of 5.

17. Write a python program to find the inverse of a given matrix.

18. What are arithmetic operators used in python ? What is the precedence of operators ?

19. Write a program for calculating solar mass (1 AU = 1.58×10^{-5} light years, Mass of sun = 2×10^{30} kg).

20. Write a program for the demonstration of Plank's law for wavelength in the interval 10 nm to 3000 nm. Take temperature of sun as 5800 K.

PART – D

Long essay questions, answer **any 2** questions. **Each** question carries **5** marks.

(2×5=10)

21. Explain the method of making user defined function with examples. Obtain a user defined function to calculate factorial of a given number.

22. Write an essay on a) conditional operators used in python b) control flow structure of various conditional and nested conditional statements used in python.

23. Explain the functions "arange, linspace, zeros, ones and reshape" used for creating arrays and matrices with suitable examples.

24. Write an essay on list data type. Explain various list operations used to create, access and manipulate lists.