QP CODE: 25024393

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Reg No : .....

Name : .....

M.Sc DEGREE (CSS) EXAMINATION, APRIL 2025

Fourth Semester

M Sc PHYSICS

ELECTIVE - PH820403 - COMPUTER APPLICATIONS IN PHYSICS

2019 ADMISSION ONWARDS

CB7676FE

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. List any four commands used in MATLAB.
2. How variables are declared in MATLAB?
3. What is Symbolic Math Toolbox ?
4. What is One Dimensional Complex Continuous Wavelet Analysis ?
5. What are the advantages of instrument control toolbox ?
6. Write the differences between read() and readline() methods in Python.
7. How an array is created in Python?
8. Write the use of else clause in try statement in Python.
9. Write the commands to plot $\sin(x^2)$ in Python.
10. Which function in Python is used to solve a system of linear equations? Explain the syntax

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Describe the representation of numbers in a computer, using a finite amount of memory space.
12. How will you find Maximum , Minimum and inflexion points using MATLAB ?
13. Differentiate between Fourier Analysis and Short Time Fourier Analysis
14. Describe MATLAB scheme for solving the Ordinary Differential Equation for Simple Harmonic Oscillator.

15. Write a program to demonstrate slice operation with strings in Python.

16. List and explain various arithmetic and comparison operators in Python.

17. What is Pie chart? How is it useful? How can you create it in Python?

18. Write a program in Python to find the derivative of a function at a point using the given step size.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Discuss figure window in MATLAB . How do you pass arguments to figure window ? What arguments can be passed ?

20. Explain the technique for solving partial differential equations with an example and MATLAB Script.

21. Describe the following in Python: 1. Function 2. Module 3.Package

22. How is it possible in Python to plot mathematical functions? Describe with examples.

(2×5=10 weightage)