K18U.1489

V Semester B.Sc. Degree (CBCSS – Reg./Sup./Imp.)
Examination, November 2018
(2014 Admn. Onwards)
CORE COURSE IN PHYSICS
5B09 PHY : Python Programming

Time : 3 Hours

Total Marks : 40

SECTION – A

Very short answer type. **Each** question carries **1** mark.

1. Which of the data type are not supported by python ?
   a) Tuple   b) List   c) Dictionary   d) Generics

2. Second order Runge-Kutta method is known as

3. The result of the statement 18% 8 is

4. What is the output of the statement print str[0 : 5], if str="Hello Kerala" ?   **(4×1=4)**

SECTION – B

Short answer type. **Each** carries **2** marks. Answer **7** questions.

5. Give the difference between x = y and x == y.

6. Give Newton's forward interpolation formula.

7. Give the Tailor series expansion of sin(x) about the point 0.

8. What is meant by curve fitting ?

9. What is meant by truncation error in numerical analysis ?

10. What is meant by slicing ?

11. Give the syntax of range() function.

12. Give statements for creating matrices.

13. What is the use of imshow() function ?

14. What is the difference between input() and raw_input() ?

$(7\times2=14)$

SECTION – C

Short essay/problem type. **Each** carries **3** marks. Answer **four** questions.

15. Obtain Simpson's one third rule of numerical integration.

16. Find the value of y for x = 34 from the following data :

x	30	35	40	45	50
y	15	18	21	24	27

17. Explain the different data structures in python.

18. Using Newton-Raphson method, find the root of the equation $f(x) = x^2 - 3x + 2$.

19. Write a program for plotting logarithm function.

20. Write a note on pickle module.

$(3\times4=12)$

SECTION – D

Long essay type. Answer **two** questions. **Each** carries **5** marks.

21. Explain the method of making user defined functions with example. Write a program to find the factorial of a number using user defined function.

22. Explain the use of while and for loops in python programming.

23 Create a 4 × 3 matrix and print the sum of its elements using for loop.

24. Explain the least square method of fitting a straight line and deduce the expressions for the constants a and b.

$(2\times5=10)$

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