



K16U 1727

Reg. No. :

Name :

V Semester B.Sc. Degree (CBCSS-2014 Admn.-Regular)

Examination, November 2016

CORE COURSE IN PHYSICS

5B 09 PHY : Python Programming

Time : 3 Hours

Max. Marks : 40

SECTION – A

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

1. What will be the output of given program ?

```
S = abcd
```

```
print s[2:]
```

2. Write the syntax of linspace function.

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

4. Write Newton-Raphson method formula.

(4×1=4)

SECTION – B

Answer **any seven**. Short answer type. **Each** question carries **2** marks.

5. With example, explain mutable and immutable data types.

6. Explain exception handling.

7. Write a program to print power of 2, upto 1024 using for loop.

8. What is meant by random module in numpy ?

9. How can we compute the inverse of a square matrix in python ?

10. Explain pie charts.

11. Write a program to plot an ellipse.



12. What is the method of bisection ?
13. How will you evaluate the function $f(x)$ where $f(a)$ is known and x is in the vicinity of the point a ?
14. What is the method of least square fitting ? (7×2=14)

SECTION – C

Answer **any four**. Short essay/problem. **Each** question carries **3** marks.

15. Write a note on modules. With example explain two different methods to import a module.
16. Write a program to check whether a year is leap year or not.
17. Create two arrays using `arrange()` and multiply them in element wise using python.
18. Explain polar plots.
19. Write a program to calculate sine and cosine of x using Taylor series.
20. Differentiate $5x^2 + 3x + 5$ numerically and evaluate at $x = 2$ and $x = -2$. (4×3=12)

SECTION – D

Answer **any two**. Long essay type. **Each** question carries **5** marks.

21. Explain the different iteration methods in python.
22. Explain the different arithmetic operations performed on arrays.
23. Write program to draw a circle which satisfies the equation.
 - 1) $x^2 + y^2 = a^2$
 - 2) $x = a \cos \theta$ and $y = a \sin \theta$Draw the outputs.
24. Explain ordinary differential equations and write two solving methods of it. (2×5=10)