

**SECOND SEMESTER B.Sc. DEGREE [SUPPLEMENTARY I IMPROVEMENT]
EXAMINATION, APRIL/MAY 2015**

(UG—CCSS)

Core Course—Mathematics

MM2 B02—INFORMATICS AND MATHEMATICAL SOFTWARES

(2010 Admission Onwards)

Time : Three Hours

Maximum : 30 Weightage

Part A

Answer all twelve questions.

1. The commands given at the terminal are processed by a program called _____
2. A program that written in a **highlevel** language is often called _____
3. `a = "Hello world"`

`print a [3:5]`

The output will be _____

4. An example of a multi-user, multi-tasking operating system is _____

5. `a = [1, 2]`

`print a + [3, 4]`

output will be _____

6. `Mylist = range (5,21,5)`

`print mylist`

The output will be

7. the statement used to skip the rest of a block and go to the beginning in a loop _____
8. Modify the expression $(8 - 3) * 2$ to get the result 2.
9. Write a function to find the product of two numbers.

10. From pylab import *

```
a = polyin ([3,4,5]
```

```
print a
```

The output will be

11. Errors detected during execution are called _____

12. The formula for Newton-Raphsm method is _____

(12 x $\frac{1}{4}$ = 3 weightage)

Part B

Answer all the nine questions.

13. Distinguish between compiler and interpreter.

14. Distinguish between string and list.

15. Explain with an example while structure in python.

16. S = [1,2,3,4,5] Slice it to set [2,3,4,2,3,4].

17. Write a function to generate Fibnocci numbers up to n.

18. Explain packages in python

19. Explain low arrays can be copied.

20. Type set $\frac{\text{_____}}{x^2} + y^2$

21. Explain Newton-Raphsm method to find the roots of an equation.

(9 x 1 = 9 weightage)

Part C

Answer all five questions.

22. Write a program to print multiplication table of 7 using while loop.

23. Write a python function to find the GCD of two numbers.

24. Explain formatted Printing.

25. Create a 3 x 3 matrix and find inverse-using python statements.

26. Write a program to plot $y = \left(a^{\frac{2}{3}} - x^{\frac{2}{3}} \right)^2$ using paramatric plot.

27. Explain the two ways of type setting mathematical expressions.
28. Write a python program to find a root of $x^3 - 10x^2 + 5 = 0$ using bisections method between 0 and 1.

(5 x 2 = 10 weightage)

Part D

Answer any two questions.

29. (a) Write a python program to find the product of two polynomials $p(x) = x^2 - 3x + 2$ and $q(x) = 5x^2 + 7x + 4$ using Pylab.
- (b) Explain the concept of functions with suitable example.

30. Write a function to find the inverse of $\begin{bmatrix} 2 & -1 & 3 \\ 1 & 1 & 1 \\ 1 & -1 & 1 \end{bmatrix}$ Use it to solve the system of Equations

$$2x - y + 3z = 9$$

$$x + y + z = 6$$

$$x - y + z = 2.$$

31. Explain the document classes supported by LATEX.

(2 x 4 = 8 weightage)