Reg. No.....

SECOND SEMESTER U.G. DEGREE EXAMINATION, APRIL/MAY 2013

(CCSS)—Core Course

Mathematics

MM 2B 02—INFORMATICS AND MATHEMATICAL SOFTWARES

(2010 Admissions)

Time : Three Hours Maximum : 30 Weightage

Part I

Answer **all** *questions.*

1. The smallest unit of memory is called ————

2. Write the output

```
x = 3 + 4j
print n, type (n)
```

3. Modules are loaded by using ————keyword.

4. Write the output

```
from numpy import*
arrange (2.0, 3.0, ·1)
```

5. Write the output

```
from pylab import *
a = poly id ([3, 4, 5])
print a.integ ( )
```

6. The formula for Netwon-Rapson method is ————

7. If there is a root between n_1 and n_2 for $f(x) = 0$ then the value of $f(x_1) \cdot f(x_2)$ *is* ————

8. Multiple plots in the same window, can be achieved using the command ————

9. Write the mathematical expression corresponding to the Latex command.

```
$A\neq B\quad A\approx C$
```

Turn over

10. Write the latex command for $a^{b}\ a^{b}$

11. Write the Latex command for $\sqrt{x^2}$

12. Write the Latex command for $\int_a^b f(x)dx.$

(12 x ¼ = 3 weightage)

Part II

Answer all the **nine** *questions.*

13. Distinguish between Compiler and Interpreter.

14. Explain the while statement with an example.

15. Write a program to find the area of a triangle when three sides are given.

16. Write a program to find the gross product of two vectors, using array.

17. Write a function to find functional of y.

18. 'Lists cannot be copied like numeric date types' —Explain.

19. Write a program to draw a Pie chart for the following data :

Labels	: Food	Rent	Education	Others
Percentage	: 30	15	15	40

20. Explain the bisection method of finding a root off *(n)* = 0.

21. Type set $\lim_{n\to} x = 0,$

(9 x 1 = 9 weightage)

Part III

Answer any **five** *questions.*

22. Write a Python program to print the multiplication table of 5.

23. Write a python program using for loop to a reverse a string.

24. Write a program to solve :

$x + y + 3z = 6$

2. $+ y + 4z = 6$

$3x + 2y + 7z \quad 0.$

25. Write a program to evaluate :

$$1 + \frac{x^2}{2!} + \frac{x^4}{4!}$$

26. Write a program to find a root of $2x^2 - 3x - 5 = 0$ using Newton-Raphson method.

27. Write a program to plot the circle x = a cost, y = a sin t.

28. Explain two-ways of typesetting mathematical formulae.

(5 x 2 = 10 weightage)

Part IV

Answer any **two** *questions.*

29. Explain any two control statements with suitable examples.

30. Write a program to find the roots of f $(x) = x^3 - 10x^2 + 5$ using bisection method.

31. (a) Typeset the following table

Person	*Sex*	*Age*
John	Male	7
Mary	Female	20
Gopal	Male	30

(b) Write the Latex Commands for

1))^2

(ii) $\sum_{i=1}^{n} x^2$.

(2 x 4 = 8 weightage)