

C 41787

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Name.....

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 *
 $a = \text{poly 1d} ([3, 4, 5])$
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 $a^b a^{b^c}$.
11. Write the Latex command for $\sqrt{x^2 + y^2}$.
12. Write the Latex command for $\int_a^b f(x) dx$.

(12 × 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 data 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 of $f(n) = 0$.
21. Type set $\lim_{n \rightarrow \infty} x = 0$.

(9 × 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 :-
- $$x + y + 3z = 6$$
- $$2x + y + 4z = 6$$
- $$3x + 2y + 7z = 0.$$

25. Write a program to evaluate :

$$\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \dots$$

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 $x = a \cos t, y = a \sin t$.

28. Explain two-ways of typesetting mathematical formulae.

(5 × 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 :

(i) $\left((x+1)(x^2-1)\right)^2$.

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

(2 × 4 = 8 weightage)