SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2011

(MSS)

Mathematics

MM2 B02 – INFORMATICS AND MATHEMATICAL SOFTWARE

Time : Three Hours   Maximum : **30** Weightage

I. Objective Type Questions.

Answer **all twelve** *questions.*

Each bunch of four questions carries 1 weightage.

1. What are the essential hardware components of computer hardware?

2. *iw* the real and imaginary parts of a complex number are extracted in Python?

3. at is the use of *range()* function in Python?

4. What is the Latex statement for the symbol $\prod$?

(4 x 1/4 = **1** weightage)

5. Which are the magnetic storage devices used in computers?

6. How will you extract the last character of a string in Python?

7. What are the different methods to import a module in Python?

8. Which are the special characters used only in Latex commands?

(4 x ¼ = **1** weightage)

9. What does the term SCSI stand for?

10. What is a package in Python?

11. What is the use of *else* statement in a loop?

12. How will you move forcefully to a new page in Latex?

(4 x ¼ = **1** weightage)

II. Short Answer Type Questions.

Answer **all** *questions. Each questions carries 1 weightage.*

13. What is a client / server network'?

14. Explain how a list is used as a stack in Python?

15. Describe with an example the *for* statement in Python?

16. Write a Python program to print the cubes of the first 10 natural numbers with the numbers right justified in their fields.

17. What is the output of the following statements :
a = [28, -8,0, -96, 45.8, 1001]
del a[0]
a.sort()
del a[2:4]
a.reverse
print a

18. Write the Latex statements for the equation $x = ((a - b) + (c - d))/ \sqrt{n}$.

19. What are the various output formats possible with Latex?

20. Write the Latex statement for the function $f(x) = 2\sin x - \cos \hat{} y + \tan xy$.

21. Write the Latex for the equation. $u = \dfrac{y + \frac{z}{2}}{x^2 \, y^2}$

(9 x 1 = 9 weightage)

III. Short Essay Questions.
Answer any **five** *questions.*
Each question carries 2 **weightage.**

22. Distinguish between LAN and WAN.

23. Write a Python program to calculate the annual compound interest.

24. Write a Python program to find the standard deviation of the first n natural numbers.

25. Explain the use of pickle module in Python.

26. Write the output of the following Latex statements

$f(x)$ \left\ \begin{array}{rll}

\ end{array}
\ right.

27. Write the Latex statements to create the function $f(x) =$ $\begin{array}{ll} -1, & if\ x < 0 \\ 0, & if\ x < 0 \\ 1, & if\ x < 0 \end{array}$

26. What are the important document classes available in Latex?

(5 x 2 = 10 weightage)

W. Essay Questions.

Answer any two questions.

Each question carries **4 weightage**

29. Write a Python program to evaluate $\cos(x) = 1 \frac{x^2}{2!} + \frac{x^4}{4!} + \frac{x^6}{6!} +$

3Q. Write a Python program to read a list of integers and write the even and odd integers to two separate files.

31. Prepare a sample bibliography using Latex.

$(2 \times 4 = 8 \text{ weightage})$