

SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2014

(U.G.-CCSS)

Core Course—Mathematics

MM 2B 02—INFORMATICS AND MATHEMATICAL SOFTWARES

(2009 admissions)

Three Hours

Maximum : 30 Weightage

Part I*Answer all questions.*

1. A computer converts data into _____.
- (a) Information. (b) Charts.
(c) Software. (d) Input.
2. Which of the following is not a modifier key ?
- (a) SHIFT. (b) CTRL.
(c) ALT. (d) BACKSPACE.
3. In a GUI, the window that is currently in use is called _____ window.
- (a) Top. (b) Active.
(c) Biggest. (d) Framed.
4. Strings can be repeated with _____ operator.
5. Output of the statement :
- ```
>>> range(0,10,3) is _____.
```
6. >>> def sum (seq):  
... def add (x, y): return x + y  
... return reduce (add, seq, 0)  
>>> sum (range (1,11))
- The output will be \_\_\_\_\_.
7. Errors detected during execution are called \_\_\_\_\_.
8. The syntax for a derived class name takes the form \_\_\_\_\_.
9. The fact that some decimal fractions cannot be represented exactly as binary fractions is referred as \_\_\_\_\_ error.

**Turn over**

10. Write the command to produce the Greek letter  $\alpha$ .
11. A box picture object is made with the \_\_\_\_\_ command.
12. The general form of the  $\backslash$  line command is \_\_\_\_\_.

(12  $\times$   $\frac{1}{4}$  = 3 weight)**Part II***Answer all nine questions.*

13. What is the purpose of the mouse pointer?
14. What is meant by 'word size'?
15. Describe the while statement with an example.
16. Write a Python program to print the multiplication table of 7.
17. Write a function to print Fibonacci numbers up to  $n$ .
18. Explain how exceptions are handled using try keyword?
19. Write Latex statement to create a  $2 \times 2$  matrix.
20. Write the various output formats possible with Latex.
21. Write the Latex code for the equation :

$$z = \frac{x + y^2}{1 + \frac{y}{z+1}}$$

(9  $\times$  1 = 9 weight)**Part III***Answer any five questions.*

22. What are the functions that an operating system performs?
23. Distinguish between `append()` and `pop()` functions connected with a list.
24. Write a note on the data type sets in Python.
25. Explain how simple inheritance and multiple inheritance are achieved in class definition?
26. How a data type similar to 'struct' in C can be achieved in Python?
27. Explain  $\backslash$  new theorem declaration to define environment for theorem like structure with example.
28. Write Latex command for  $\int_0^{\pi/2} \sin x dx$ .

(5  $\times$  2 = 10 weight)

## Part IV

Answer any **two** questions.

1. (a) Write a Python program to generate primes less than 300.
- (b) How complex numbers are defined in Python ?
2. Write a short note on the standard library in Python.
3. Prepare a sample index using Latex.

(2 × 4 = 8 weightage)