[24-HKPD1SN-24J (M2)]

MA 1st Semester (NEP) Exam. 2024 (S2)

(*Open Source Software*)

[PGCA, S1-05]

Full Marks : 50

Time : 3 hours

The figures in the right-hand margin indicate marks.

1. Answer any *three* from the following questions : $10 \times 3 = 30$

(*a*) What is LaTex ? What is the use of LaTex editor ? How to compile a LaTex file ? Write the code in LaTex to produce the following expression : $\frac{-a \pm \sqrt{a^2 - 4bc}}{2b}$. 1+3+3+3 = 10

(*b*) How to create sections and subsections of an article ? Explain how to refer an equation in LaTex. Also write the code to create a list of figures. 4+3+4 = 10

(*c*) Discuss any five 'Built-In Functions' that can be used on a matrix in Scilab. Use examples to explain each function.

(*d*) Describe the following with syntax and examples in Scilab : 2.5+2.5+2.5+2.5 = 10

(*i*) if else statement

(*ii*) break statement

(*iii*) for loop

(*iv*) while loop

(*e*) What is Python ? Write the steps involved in the installation of Python in Linux and Windows. 2+8 = 10

2. Answer any *four* from the following questions : $5 \times 4 = 20$

(*a*) Briefly explain the following : 2.5+2.5 = 5

(*i*) HYPERREF package

(*ii*) ALGORITHMIC packages

(*b*) Discuss in brief about any two document classes used in LaTex. 2.5+2.5 = 5

(*c*) Describe the different standard data types in Python.

(*d*) Name four 2-D plot and 3-D plot functions along with their purposes. Which function is used to generate .jpg files in Scilab ? 4+1 = 5

(*e*) How can we create a numbered list and bulleted list in LaTex ?

(*f*) Write a Python program to find the factorial of a number.