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3 (Sem-3/CBCS) TIT SE

2021

(Held in 2022)

INFORMATION TECHNOLOGY

(Honours)

Paper : TIT-SE-3014

(Open Source Software)

Full Marks : 50

Time : Two hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions as directed : $1 \times 7 = 7$

(a) The first part of a LaTeX document where document-wide definitions are written are called _____.

(Fill in the blank)

(b) _____ LaTeX command is used to display text in bold face.

(Fill in the blank)

Cqntd.

(c) In LaTeX, a tabbing environment is used to create tables.

(State True or False)

(d) The **amsmath** package offers specialized environment for writing formulas.

(State True or False)

(e) Scilab is an interpreted language.

(State True or False)

(f) In Scilab, _____ function is used to create an identity matrix.

(Fill in the blank)

(g) A Python string is mutable.

(State True or False)

2. Answer the following questions : $2 \times 4 = 8$

(a) How to control paragraph break and page break in LaTeX ?

(b) How to create Bulleted lists in LaTeX ?

(c) Write *any two* functions used to manage complex numbers in Scilab.

(d) Write a 'for' statement in Scilab to display the values from 1 to 5.

3. Answer **any three** of the following questions : $5 \times 3 = 15$

(a) Give brief description of beamer class.

(b) How are new commands defined in LaTeX ? Explain with example.

(c) Write a Scilab code to display the roots of a quadratic equation.

(d) Write brief introduction of any five functions of Scilab used in linear algebra and data plotting.

(e) Prepare a list of binary operators recognized by Python and write their operations.

4. Answer **any two** of the following questions : $10 \times 2 = 20$

(a) Write LaTeX commands to display the following formulas :

(i) $x_1^2 + x_2^2 = 1$

(ii) $\sqrt[10]{x} = \sqrt{\sqrt{\sqrt{\sqrt{x}}}}$

(iii) $\sum x = x_1 + x_2 + x_3$

$$(iv) P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$(v) x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

- (b) Write a Scilab program to display odd numbers between 500 and 700 and even numbers between 200 and 350.
- (c) What are Python's technical strengths? Explain.
- (d) Write short notes on : **(any two)**
- (i) Amssymb
 - (ii) Predefined constants of Scilab
 - (iii) Comparison of Scilab with MATLAB
 - (iv) Conditional statements in Scilab
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