

Total number of printed pages – 4

**63 (FY)SEM-3/SEC/MATSEC2013**

**2025**

**MATHEMATICS**

Paper : MATSEC2013

**( Scilab )**

Full Marks : 40

Pass Marks : 16

Time : Two hours

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

1. Choose the correct answer : 1×5=5

(i) Which of the following is not the mathematical function in Scilab ?

(a)  $\log ( )$

(b)  $\text{Sqrt} ( )$

(c)  $\text{disp} ( )$

(d)  $\sin ( )$

- (ii) Scilab is—
- (a) Proprietary software
  - (b) Open-source software
  - (c) Commercial package
  - (d) Shareware
- (iii) Which plotting function is appropriate for 2D and 3D surface plot respectively?
- (a) plot 2D; 3D grayplot
  - (b) plot 2D, plot 3D
  - (c) grayplot, plot
  - (d) plot ndgrid
- (iv) What is the output of  $\text{int } 8*(2^3+2)$  ?
- (a) 80
  - (b) 160
  - (c) 2
  - (d) -254
- (v) In Scilab, the symbol "=" is primarily used to—
- (a) Compare *two* values for equality
  - (b) Assign a right-hand expression to a variable on the left hand side

- (c) Test identity of data types
- (d) Perform vectorized comparisons across arrays

2. Answer the following questions : **(any five)**  
2×5=10

- (i) What is the purpose of `disp( )` command?
- (ii) What is a variable in Scilab? Give *one* example.
- (iii) What is boolean data type? Give an example.
- (iv) Write *any two* logical operators used in Scilab.
- (v) Write *any four* mathematical operators in order of precedence order.
- (vi) List *any two* key features of Scilab.
- (vii) What are predefined constant in Scilab? Mention *any four*.

3. Answer the following questions : **(any three)**  
5×3=15

- (i) Define the assignment operator in Scilab and explain how it differs from "==" operator.

- (ii) Write short notes on :
  - (a) Logical operator
  - (b) Autocompletion feature
  - (c) SciNotes
- (iii) Discuss the *five* main data types available in Scilab with suitable example.
- (iv) Write a Scilab program to create a matrix and its transpose and determinant.
- (v) Write the steps to install Scilab in your personal computer.

4. Answer the following questions: **(any one)**  
10×1=10

- (i) (a) What are matrices and vectors in Scilab ?
  - (b) Demonstrate matrix operations including addition, element wise multiplication and finding inverse with code and explanation.

**OR**

- (ii) (a) Describe how to perform both 2D and 3D plotting in Scilab.
    - (b) Write Scilab code to generate 2D Line plot and a 3D surface plot.
-