BRAINWARE UNIVERSITY
Term End Examination 2020 - 21
Programme – Bachelor of Technology in Computer Science & Engineering
Course Name – IT Workshop
Course Code - PCC-CS302
Semester / Year - Semester III

Time allotted : 75 Minutes   Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)   1 x 60=60

1.   *(Answer any Sixty)*

(i) We can generate the summation of a series, formed with a character, using _____

a) symsum   b) sum

c) symssum   d) int

(ii) We can find the summation of an A.G.P. series using _____

a) sum()   b) symsum()

c) Depends on the series   d) Cannot be done

(iii) What is the output of the following code? mean(1:10)

a) Syntactical Error   b) 4.5

c) 5.5   d) Parse Error

(iv) Which command is used to clear a command window?

a) clear   b) close all

c) clc   d) clear all

(v) Command used to display the value of variable x

a) displayx   b) disp(x)

c) ctrl+v   d) ctrl+b

(vi) Which is the invalid variable name in MATLAB?

a) x6

b) last

c) 6x

d) Z

(vii) What are the characters in MATLAB are represented in their value in memory?

a) Decimal

b) ASCII

c) Hex

d) String

(viii) What would be the output of the following code (in editor window)? A = [1 1 0 0] B = [1 ;2 ;3 ;4] C=A*B

a) 0

b) [1 0 0 0]

c) 3

d) [1 2 0 0]

(ix) Which of the following is not a pre-defined variable in MATLAB?

a) Pi

b) eye

c) i

d) gravity

(x) This MATLAB command clears all data and variables stored in memory

a) clc

b) clear

c) delete

d) deallocate

(xi) Compute 24 modulo 5. b = mod(24,5)

a) 3

b) 6

c) 4

d) 5

(xii) Which of the following method is employed for solving the system of linear equations?

a) Runge Kutta

b) Newton Raphson

c) Gauss Seidal

d) Simpson's Rule

(xiii) What value does the variable q contain after the MATLAB code below executes? a = [1 3 5]; q = a.*a; q = q + 2;

a) [3 11 27]   b) Nothing - operation is not possible

c) [1 3 5]   d) [3 5 7]

(xiv)

What is the condition applied in factorization method?

a)   b)

Matrix should not be singular   Back substitution should be done

c)   d)

There must exist a diagonal matrix form of   All principal minors of the matrix should be
the given matrix   non-singular

(xv) Which of the following MATLAB calculations would result the value 1?

a) 1+4/5   b) 6/2*3

c) 3^3*2/3   d) None of these

(xvi) Is histogram a kind of multiple plots?

a) true   b) false

c) Cannot determine   d) None of these

(xvii) What is the error in the code? a=[[1;2];(2,3)]

a) Third brackets are wrong   b) The semicolon within the second third
                                             brackets

c) There is no error   d) Error: Expression or statement is
                                             incorrect–possibly unbalanced

(xviii) What is the limitation of Gauss-seidal method?

a) It cannot be used for the matrices with   b) It is more complex than Jacobi's method

non-zero diagonal elements

c) It doesn't guarantees convergence for each and every matrix

d) It is an iterative technique

(xix) The difference between a function and a script is:

a) Only a function file can be run from the command line

b) Only a script file can perform a series of commands

c) Only a function requires inputs

d) Function variable names only have meaning within the function, whereas script variables are available to other programs

(xx) MATLAB API means:

a) Application Program Interface

b) Application Process Interconnected

c) Advance Program Internet

d) Advanced process Interface

(xxi) What are the types of loops does MATLAB provides?

a) While loop

b) For loop

c) Not Supported

d) Both While loop and For loop

(xxii) FEM in MATLAB

a) Finite element Modeling

b) Final element MATLAB

c) Finite element MATLAB

d) Both Final element MATLAB and Finite element MATLAB

(xxiii) Which Graphic System is used in MATLAB

a) High level and low level commands

b) Only High level command

c) Low level command

d) None of these

(xxiv) The LU method of factorization was introduced by the mathematician_____

a) Alan Tango

b) David Hilbert

c) G. W. Leibniz

d) Alex Grothendieck

(xxv) Which of the following step is not involved in the factorization process?

a) converting the given system to matrix form

b) the matrix is decomposed into the product of lower and upper triangular matrix

c) finding the unknowns using matrix multiplication

d) elimination of unknowns using back substitution

(xxvi) A=1:6

a) 1 2 3 4 5 6

b) 2 3 4 5

c) 1 6

d) 6 5 4 3 2 1

(xxvii) A=[3:3:15]

a) 3 6 9 12 15

b) 3 15

c) Error

d) None of these

(xxviii) A=[8 9 9; 4 5 6]

a)

b) 8 9 9 4 5 6

8 9 9

4 5 6

c) 8 9 94 5 6

d) None of these

(xxix) How much does the precision change while finding sin(x) using evalc and eval?

a) 0.1

b) 0.2

c) 0.3

d) No change

(xxx) What is the output of the following code? evalc('Laplace(t)')

a) Syntactical Error

b) Symbolic error

c) 1/s

d) 1/s2

(xxxi) What is the output of the following code? error(' No !!!!')

a) No ! ! !!

b) No !!!!

c) Logical Error

d) Symbolic error

(xxxii) What is the output of the following code? disp('%d',Inf);

a) Inf

b) No such command

c) Error due to too many arguments

d) Syntactical error

(xxxiii) The number of iterations in the following loop is p=3;for i=(3:4) p=p +2; end

a) 0

b) 1

c) 3

d) 2

(xxxiv) Which of the below method is not practical because h required to be small?

a) R-K Method

b) Taylor Series

c) Both (R-K Method) and (Taylor Series)   d) Euler Method

(xxxv) Interpolation Formula are based on the fact that data are expressed as a

a) linear function

b) quadratic function

c) polynomial function

d) None of these

(xxxvi) Divided difference is applicable when values are in

a) Regular intervals

b) Unequal intervals

c) Not well defined

d) None of these

(xxxvii) The method gives unique set values to the constants is

a) Graphical method

b) Group Averaging

c) Least Square   d) Rough Method

(xxxviii) In which of the following cases, Simpson's rule is adopted?

a) When straights are perpendicular   b) When straights are parallel

c) When straights form curves   d) When straights form parabolic arcs

(xxxix) Which of the following shapes is generally preferred in case of application of Simpson's rule?

a) Square   b) Triangle

c) Trapezoid   d) Rectangle

(xl) The correction applied in trapezoidal formula is equal to_____

a) Product of calculated volume and obtained volume   b) Summation between calculated volume and obtained volume

c) Difference between calculated volume and obtained volume   d) Division of calculated volume and obtained volume

(xli) Which of the following methods is used to find the numerical derivatives?

a) Trapezoidal Rule   b) Simpson's 1/3rd rule

c) Simpson's 3/8rd rule   d) Newton's forward difference formula

(xlii) Which method is said as direct method?

a) Gauss Elimination   b) Newton Rapson

c) Regula Falsi   d) Gauss Jacobi

(xliii) Match the following: A. Newton-Raphson 1. Integration B. Runge-kutta 2. Root finding C. Gauss-seidel 3. Ordinary Diferential Equations D. Simpson's Rule 4. Solution of system of Linear Equations Codes: ABCD

a) 4231   b) 2341

c) 3241   d) 1234

(xliv)

Rate of convergence of the Newton-Raphson method is generally _____

a)   b)

Linear   Quadratic

c)   d)

Super-linear   Cubic

(xlv) what is Interpolation?

a) Taking out function values between   b) Finding function values beyond the
different data points in an array is referred endpoints in array is referred as
as Interpolation   Interpolation

c) Both Taking out function values   d) None of these
between different data points in an array is
referred as Interpolation and Finding
function values beyond the endpoints in
array is referred as Interpolation

(xlvi) The modification of Gauss elimination method is called as _____

a) Gauss Jacobi   b) Gauss Seidal

c) Gauss Jordon   d) Relaxation Method

(xlvii) While using Gauss Jordan's method, after all the elementary row
operations if there are zeroes left on the main diagonal, then which of the
following is correct?

a) System may have unique solution   b) System has no solution

c) System may have multiple numbers of   d) System may have infinitely many
finite solutions   solutions

(xlviii) Gauss seidal method is similar to which of the following methods

a) Iteration method   b) Newton Raphson method

c) Jacobi's method   d) Regula-Falsi method

(xlix) Why Gauss Elimination is preferred over other methods?

a) Less number of operations are involved   b) Back substitution needed

c) Forms diagonal matrix form   d) Elimination of unknowns

(l) The augmented matrix in Gauss Jordan method is reduced to
_____

a) Row Echelon form   b) Column Echelon form

c) Matrix Echelon form   d) Augmented form

(li) The next iterative value of the root of $x^3 - 2x + 4 = 0$ using the Newton-Raphson method, if the initial guess is 5, is

a) 1.5   b) 2.067

c) 2.167   d) None of these

(lii) Which of the following is a transcendental function?

a) $2*e^x + 1 = 0$ b) $2*x^2 + \cos x + 4 = 0$

c) $a + b\tan x + c\log x = 0$ d) All of these

(liii) Which of the following methods is not used to find roots for algebraic equations?

a) Bisection Method   b) Method of False Position

c) Newton – Rapson Method   d) Trapezoidal Rule

(liv) To find a missing value from a table, if the input intervals are not equal, then which method is applied?

a) Newton-Forward Interpolation   b) Newton-Backward Interpolation

c) Both (Newton-Forward Interpolation) and (Newton-Backward Interpolation)   d) Lagrange's Interpolation

(lv) In a table, Year and Population of a city is given. If the growth of population is to be calculated for a specific year, it is a problem of

a) Numerical Derivatives

b) Numerical Integration

c) Interpolation

d) None of these

(lvi) Gauss Seidal method is also termed as a method of

a) Successive displacement

b) Eliminations

c) False positions

d) Iterations

(lvii) The next iterative value of the root of $x^2 - 4 = 0$ using the Newton-Raphson method, if the initial guess is 3

a) 1.5

b) 2.067

c) 2.167

d) 3

(lviii) What is the main difference between Jacobi's and Gauss-seidal?

a) Computations in Jacobi's can be done in parallel but not in Gauss-seidal

b) Convergence in Jacobi's method is faster

c) Gauss seidal cannot solve the system of linear equations in three variables whereas Jacobi cannot

d) Deviation from the correct answer is more in gauss seidal

(lix) The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeroes along

a) Leading diagonal

b) Last column

c) Last row

d) Non-leading diagonal

(lx) In Jacobi's Method, the rate of convergence is quite _____ compared with other methods.

a) Slow

b) Fast

c) Very fast

d) Not defined