University of Mumbai
Online Examination 2020

Program: BE Chemical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: CHC501

Course Name: Computer Programming and Numerical Methods

Time: 1 hour   Max. Marks: 50

Note to the students:- All Questions are compulsory and carry equal marks .

Q1.	Root of equation $x^3 - x - 1$ lies between.
Option A:	1 and 2
Option B:	0 and 1
Option C:	2 and 3
Option D:	3 and 4
Ans:	**A**
Q2.	The Heat equation is of _____ type.
Option A:	Elliptic
Option B:	Hyperbolic
Option C:	Parabolic
Option D:	Circular
Ans:	C
Q3.	The Newton-Raphson method of finding roots of nonlinear equations falls under the category of methods.
Option A:	bracketing
Option B:	open
Option C:	random
Option D:	graphical
Ans:	**B**

Q4.	$xu_{xx} + u_{yy} = 0$ is hyperbolic if _____
Option A:	x=0
Option B:	x>0
Option C:	x<0
Option D:	x=1
Ans:	C
Q5.	A root of the equation $x^3 - x - 11 = 0$ lies between
Option A:	1 and 2
Option B:	3 and 4
Option C:	2 and 3
Option D:	0 and 1
Ans:	**C**
Q6.	Find the odd one in below option.
Option A:	Gauss Jordon method
Option B:	Newton Raphson method
Option C:	Bisection Method
Option D:	Regula Falsi Method
Ans:	**A**
Q7.	Which of the following Method is not use for algebraic and transcendental equations?
Option A:	Regula Falsi Method
Option B:	Successive method
Option C:	Bisection Method
Option D:	Gauss Elimination Method
Ans:	**D**
Q8.	$xu_{xx} + u_{yy} = 0$ is elliptic if _____
Option A:	x=0
Option B:	x>0
Option C:	x<0
Option D:	x=1
Ans:	B
Q9.	In Gauss Jordan method which of the following transformations are allowed?
Option A:	Diagonal transformation

Option B:	Column transformation
Option C:	Row transformation
Option D:	Square transformation
Ans:	**C**
Q10.	An equation which expresses a relation between the independent variable, the dependent variable and successive differences of the dependent variable is called _____
Option A:	An Ordinary Differential Equation
Option B:	Partial Differential Equation
Option C:	Simutaneous Equation
Option D:	Difference Euation
Ans:	B
Q11.	The Iterative formula for Newton Raphson method is given by
Option A:	x1 = x0-f(x0)/f'(x0)
Option B:	x0 = x1-f(x0)/f'(x0)
Option C:	x0 = x1+f(x0)/f'(x0)
Option D:	x1 = x0+f(x0)/f'(x0)
Ans:	**A**
Q12.	In Gaussian elimination method, original equations are transformed by using _____
Option A:	Column operations
Option B:	Row Operations
Option C:	Mathematical Operations
Option D:	Subset Operation
Ans:	**B**
Q13.	How the transformation of coefficient matrix A to upper triangular matrix is done?
Option A:	Elementary row transformations
Option B:	Elementary column transformations
Option C:	Successive multiplication
Option D:	Successive division
Ans:	**A**
Q14.	Which of the following method is employed for solving the system of linear equations?
Option A:	Runge Kutta
Option B:	Newton Raphson
Option C:	Gauss Seidal
Option D:	Simpson's Rule
Ans:	**C**

Q15.	The differential equation with one independent variable is called _____
Option A:	An Ordinary Differential Equation
Option B:	Partial Differential Equation
Option C:	Simutaneous Equation
Option D:	Simple Equation
Ans:	**A**
Q16.	The classification of PDEs are governed by _____
Option A:	Their highest order derivative
Option B:	Their least order derivatives
Option C:	The number of terms
Option D:	The constants
Ans:	A
Q17.	In the function y = f(x) the dependent variable is _____.
Option A:	Y
Option B:	x
Option C:	f(x)
Option D:	a constant
Ans:	**A**
Q18.	Which Of The Following Keywords Mark The Beginning Of The Class Definition?
Option A:	return
Option B:	class
Option C:	def
Option D:	All of the above
Ans:	B
Q19.	Consider an nth order accurate Runge-Kutta method. How many times is the derivative evaluated at the fourth time-step?
Option A:	one time
Option B:	two times
Option C:	four times
Option D:	n times
Ans:	**D**
Q20.	19 % 2 in python
Option A:	2
Option B:	17
Option C:	1

Option D:	9
Ans:	C
Q21.	How many steps does the fourth-order Runge-Kutta method use?
Option A:	Two steps
Option B:	Five steps
Option C:	Four steps
Option D:	Three steps
Ans:	**C**
Q22.	Which of the following data types is not supported in python ?
Option A:	String
Option B:	Numbers
Option C:	Slice
Option D:	List
Ans:	C
Q23.	Order of Partial Differential equation is
Option A:	lowest order of the partial derivative involved in it
Option B:	Independent of derivatives involved in it
Option C:	highest order of the partial derivative involved in it
Option D:	Unpredictable
Ans:	C
Q24.	Which one of the following has the highest precedence in the expression?
Option A:	Addition
Option B:	Multiplication
Option C:	Exponential
Option D:	Parentheses
Ans:	D
Q25.	Which of the following has more precedence?
Option A:	/
Option B:	+
Option C:	()
Option D:	-
Ans:	C

University of Mumbai
Online Examination 2020

Program: BE Chemical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: CHC501

Course Name: Computer Programming and Numerical Methods

Time: 1 hour   Max. Marks: 50

Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D'
Q1.	A
Q2.	C
Q3.	B
Q4	C
Q5	C
Q6	A
Q7	D
Q8.	B
Q9.	C
Q10.	B
Q11.	A
Q12.	B
Q13.	A
Q14.	C
Q15.	A
Q16.	A
Q17.	A
Q18.	B
Q19.	D
Q20.	C
Q21.	C
Q22.	C
Q23.	C
Q24.	D

Q25.	C