



MTH-603 Numerical Analysis
Update MCQS For Final Term
Solve By Vu Topper RM



85 To 100% Marks



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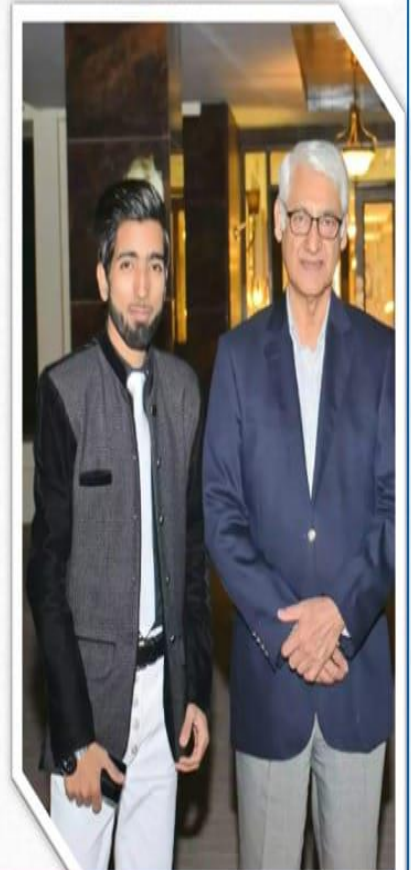
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Question No:1

(Marks:01)

Vu-Topper RM

At which of the following point the derivatives or slopes the functions $f(x) = x - 2$ and $g(x) = x + 2$ may differ?

- A. differ for every value of 'x'
- B. does not differ for any value of 'x'
- C. $x = 2$**
- D. $x = -2$

Question No:2

(Marks:01)

Vu-Topper RM

In Simpson's rule, we assume that $f(x)$ is continuous on $[a, b]$ and we divide $[a, b]$ into an number n of subintervals of equal length.

- A. Odd
- B. Even**
- C. Prime
- D. None of the given choices

Question No:3

(Marks:01)

Vu-Topper RM

Geometrically, in Simpson's 1/3 Rule, we find the area of ----- strip/strips at time under a curve of given function.

- A. Three
- B. five**
- C. one
- D. two

Question No:4

(Marks:01)

Vu-Topper RM

To improve the accuracy of the derivative of the function, which of the following method is more helpful?

- A. Extrapolation**
- B. Interpolation
- C. Divided difference
- D. Central difference

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Question No:5

(Marks:01)

Vu-Topper RM

To take the derivative of $f(x) = 2x$ in the interval $[-3,3]$, which of the following partition of subintervals will be suitable?

A. Equally spaced

B. Unequally spaced

C. Union of equally spaced and unequally spaced intervals.

D. Any arbitrary partition will work

Question No:6

(Marks:01)

Vu-Topper RM

While employing Trapezoidal and Simpson Rules to evaluate the double integral numerically, by using Trapezoidal and Simpson rule over -----.

A. Plane region

B. Both

C. None

D. Real line

Question No:7

(Marks:01)

Vu-Topper RM

While employing Trapezoidal and Simpson Rules to evaluate the double integral numerically, by using Trapezoidal and Simpson rule with respect to ----- variable/variables at time

A. Single

B. Both

C. None

D. Double

Question No:8

(Marks:01)

Vu-Topper RM

Which of the following method is simplest one to integrate numerically a given tabular function but give more error?

A. Simpson's 3/8 Rule

B. Simpson's 1/3 Rule

C. Trapezoidal method

D. Rectangular method

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Question No:9

(Marks:01)

Vu-Topper RM

Simpson's 3/8 rule is based on fitting points by a cubic.

- A. Two
- B. Three
- C. Four** **Page 169**
- D. None of the given choices

Question No:10

(Marks:01)

Vu-Topper RM

We can improve the accuracy of trapezoidal and Simpson's rules using

- A. Simpson's 1/3 rule
- B. Simpson's 3/8 rule
- C. Richardson's extrapolation method** **Page 178**
- D. None of the given choices

Question No:11

(Marks:01)

Vu-Topper RM

Which of the following is the cote's number (weighting coefficient) of the function: $f(x)=x+1$ in the interval $[0,1]$?

- A. 3/2
- B. -3/2
- C. 1/2**
- D. -1/2

Question No:12

(Marks:01)

Vu-Topper RM

The area of a trapezoid is obtained by adding the area of aand a triangle.

- A. Rectangle**
- B. Square
- C. Circle
- D. None of given

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Question No:13

(Marks:01)

Vu-Topper RM

Which of the following reason(s) lead towards the numerical integration methods?

A. All above choices are true

B. Integrand is given in tabular form

C. Analytical evaluation of integral is impossible

D. Analytical evaluation of integral is very complicated

Question No:14

(Marks:01)

Vu-Topper RM

In Simpson's 3/8 rule, we divide the interval of integration into n sub-intervals. Where n is divisible by.....

A. 2

B. 3

C. 4

D. None of the given choices

Question No:15

(Marks:01)

Vu-Topper RM

For a function 'f(x) = x', with a step size of 'h=0.01', which of the following gives the 1st derivative at x =1 by using two point formula?

A. Y'=(x)=1+Some truncation Error

B. Y'=(x)=1.01+Some truncation Error

C. Y'=(x)=.0.1+Some truncation Error

D. Y'=(x)=0.1+Some truncation Error

Question No:16

(Marks:01)

Vu-Topper RM

Simpson's 1/3 rule is based on fitting three points with a

A. Cubic

B. Both

C. None

D. **Quadratic**

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Question No:17

(Marks:01)

Vu-Topper RM

In Newton-Cotes formula for finding the definite integral of a tabular function, which of the following is taken as an approximate function then find the desired integral?

A. Polynomial Function

Page 166

B. Exponential Function

C. Logarithmic Function

D. Trigonometric Function

Question No:18

(Marks:01)

Vu-Topper RM

Trapezoidal rule of integration of a definite integral is of.....

A. $O(h^2)$

B. $O(h^3)$

C. $O(h^4)$

D. None of the given choices

Question No:19

(Marks:01)

Vu-Topper RM

While using the composite trapezoidal form for integrating $y=f(x)$ in $[0,10]$ which is subdivided in equally space interval of width $h=2$ then which of the following is the area of associated trapezoidal strip over subinterval: $[2,4]$?

A. $(y_2+y_4)/2$

B. (y_2+y_4)

C. $(y_2|y_4)/2$

D. $(y_2|y_4)$

Question No:20

(Marks:01)

Vu-Topper RM

If the area under ' $f(x) = x$ ' in interval $[0,2]$ is subdivided into two equal sub-intervals of width '1' with left end points, then which of the following will be the Truncation Error provided that $I(\text{definite integral}) = 2$ and approximate sum = 3 ?

A. 0

B. -1

C. 1

D. 3

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Question No:21

(Marks:01)

Vu-Topper RM

In Richardson's extrapolation method, we usually use two different step sizesand to yield a higher order method.

A. h,h/2

B. h/2,h/4

C. h/2,h/3

D. None of the given choices

Question No:22

(Marks:01)

Vu-Topper RM

Simpson's rule is a numerical method that approximates the value of a definite integral by usingpolynomials.

A. Linear

B. Quadratic

C. Cubic

D. None of the given choices

Question No:23

(Marks:01)

Vu-Topper RM

Which of the following is the Richardson's Extrapolation limit:

$F_3(h/8)$ provided that $F_2(h/8)=F_2(h/4)=1$

A. 63

B. 64

C. 1

D. -1

Question No:24

(Marks:01)

Vu-Topper RM

The idea of Richardson's extrapolation is to combine two computed values of derivative of y using the same method but with different step sizes?

A. Four

B. Two

Page 1

C. Three

D. None of the given choices

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Question No:25

(Marks:01)

Vu-Topper RM

In Romberg's method, accuracy of Simpson and Trapezoidal rules is improved by -----.

Interpolation

Extrapolation

Google

Question No:26

(Marks:01)

Vu-Topper RM

In the process of Numerical Differentiation, we differentiate an interpolating polynomial in place of -----.

A. actual function

B. extrapolating polynomial

C. Lagrange's polynomial

D. Newton's Divided Difference Interpolating polynomial

Question No:27

(Marks:01)

Vu-Topper RM

In Simpson's 1/3 rule, the global error is of

A. $O(h^2)$

B. $O(h^3)$

C. $O(h^4)$

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D. None of the given choices

Question No:28

(Marks:01)

Vu-Topper RM

Which of the following is the Richardson's Extrapolation limit:

$F_2(h/4)$ provided that $F_1(h/4) = F_1(h/2) = 1$?

A. 15

B. 16

C. -1

D. 1

Question No:29

(Marks:01)

Vu-Topper RM

If $f(x) = 2x$, then which of the following is will be derivative of $f(x)$ at $x = 0.2$?

A. 0.2

B. 0.4

C. 2

D. -2

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Question No:30

(Marks:01)

Vu-Topper RM

Trapezoidal and Simpson's integrations are just a linear combination of values of the given function at different values of thevariable.

A. Dependent

B. Independent

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C. Arbitrary

D. None of the given choices

Question No:31

(Marks:01)

Vu-Topper RM

In Composite Trapezoidal formula for integrating a Tabular function, we can approximate it with a polynomial whose ----- order derivative vanishes.

A. Third

B. First

C. Second

D. Fourth

Question No:32

(Marks:01)

Vu-Topper RM

If the area under ' $f(x) = x$ ' in interval $[0,2]$ is subdivided into two equal sub-intervals of width '1' with left end points, then which of the following will be the Truncation Error provided that $I(\text{definite integral}) = 2$ and approximate sum = 3 ?

A. 0

B. 1

C. -1

D. 3

Question No:33

(Marks:01)

Vu-Topper RM

The percentage error in numerical integration is defined as

A. = (Theoretical Value-Experiment Value)* Experiment Value*100

B. = (Theoretical Value +Experiment Value)/ Experiment Value*100

C. = (Theoretical Value-Experiment Value)/ Theoretical Value *100

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$D. = (\text{Theoretical Value} - \text{Experiment Value}) / \text{Experiment Value} * 100$

Question No:34 (Marks:01) **Vu-Topper RM**

Two-point formula for the first derivative is defined as

- A. $Y(x_i+H) - y(x_i-h) / 2h$**
- B. $Y(x_i+H) - y(x_i-h) / 2h$
- C. $Y(x_i+H) - y(x_i-h) / 2^h$
- D. $Y(x_i+H) + y(x_i-h) / 2^h$

Question No:35 (Marks:01) **Vu-Topper RM**

Trapezoidal rule of integration of a definite integral is of?

- A. $o(h^2)$**
- B. $o(h^3)$
- C. $o(h^4)$
- D. none of the given choice

Question No:36 (Marks:01) **Vu-Topper RM**

To evaluate numerically a double integral over a rectangular region bounded by the lines $x=a$, $x=b$, $y=c$, $y=d$ we shall employ either trapezoidal rule of Simpson's rule, repeatedly with respect to ||| variable at a time

- A. One**
- B. Two
- C. Three
- D. None of given option

Question No:37 (Marks:01) **Vu-Topper RM**

Simpson's rule is a numerical method that approximates the value of definite integral by using Polynomials

- A. Linear
- B. Quadratic polynomial**
- C. Cubic
- D. None of the given choice

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Question No:38

(Marks:01)

Vu-Topper RM

In Simpson's rule we assume that $f(x)$ is continuous on $[a,b]$ and we divide $[a,b]$ into an number n of subintervals of equal length.

A. odd

B. Even

C. Prime

D. None of given option

Question No:39

(Marks:01)

Vu-Topper RM

The step size $|h|$ in numerical integration over the interval $[a, b]$ is defined as

A. $h = [b-a]/n$

B. $h = [b+a]/n$

C. $h = [a-b]/n$

D. $h = [b/a]/n$

Question No:40

(Marks:01)

Vu-Topper RM

Which of the following is the Global Error for Simpson's 3/8 Rule while integrating ' $f(x) = \cos x$ ' in the interval of $(0, \pi)$ of equally spaced subinterval of width $h = \pi/6$ and intermediate point $x = \pi/2$?

A. $-\pi/80$

B. $\pi/80$

C. 0

D. 1

Question No:41

(Marks:01)

Vu-Topper RM

Eigenvalues of a symmetric matrix are all _____ .

A. Real

B. complex

C. zero

D. positive

Question No:42

(Marks:01)

Vu-Topper RM

Below are all the finite difference methods EXCEPT _____ .

A. jacobi's method

B. newton's backward difference method

C. Stirling formula

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D. Forward difference method

Question No:43

(Marks:01)

Vu-Topper RM

The characteristics polynomial of a 3×3 identity matrix is _____, if x is the eigen values of the given 3×3 identity matrix. where symbol $^{\wedge}$ shows power.

- A. $(x-1)^3$
- B. $(x+1)^3$
- C. x^3-1
- D. x^3+1**

Question No:44

(Marks:01)

Vu-Topper RM

Eigenvalues of a symmetric matrix are all _____.

Select correct option:

- A. real**
- B. zero
- C. positive
- D. negative

Question No:45

(Marks:01)

Vu-Topper RM

The characteristics polynomial of a 3×3 identity matrix is _____, if x is the eigen values of the given 3×3 identity matrix. where symbol $^{\wedge}$ shows power.

- A. $(x-1)^3$
- B. $(x+1)^3$**
- C. x^3-1
- D. x^3+1

Question No:46

(Marks:01)

Vu-Topper RM

The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeros along its _____.

Select correct option:

- A. main diagonal
- B. last column
- C. last row
- D. first row**

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Question No:47

(Marks:01)

Vu-Topper RM

Geometrically, in Simpson's 1/3 Rule, we find the area of ----- strip/strips at time under a curve of given function.

- A. Three
- B. five
- C. one
- D. two**

Question No:48

(Marks:01)

Vu-Topper RM

Simpson's 3/8 rule represents the area between the curve $y = f(x)$ in the interval say $[a,b]$ above x-axis by approximating the given curve by the -----.

- A. Cubic curve through one point
- B. Cubic curve through two points
- C. Cubic curve through three points**
- D. Cubic curve through four points

Question No:49

(Marks:01)

Vu-Topper RM

Three-point formula for the second derivative is defined as

- A. $y(x_i+h)+2y(x_i)+y(x_i-h)/h^2$**
- B. $y(x_i+h)-2y(x_i)+y(x_i-h)/h^2$
- C. $y(x_i+h)-2y(x_i)-y(x_i-h)/h^2$
- D. $y(x_i+h)-2y(x_i)+y(x_i-h)/2h$

Question No:50

(Marks:01)

Vu-Topper RM

To evaluate a definite integral of tabular function $f(x)$, piecewise linear approximation led to -----.

- A. Trapezoidal Method**
- B. Simpson's 1/3 Rule
- C. Simpson's 3/8 Rule
- D. Romberg's Method

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Question No:51

(Marks:01)

Vu-Topper RM

Which of the following is the Global Error for Trapezoidal's Rule while integrating $f(x) = x^2$ in the interval of $[0,2]$ of equally spaced subinterval of width $h = 1$ and intermediate point $x=1$?

- A. $1/3$
- B. $-1/3$
- C. $-1/2$
- D. $1/2$**

Question No:52

(Marks:01)

Vu-Topper RM

The determinant of a matrix is the product of the diagonal elements.

- A. Diagonal**
- B. Upper triangular
- C. Lower triangular
- D. Scalar

Question No:53

(Marks:01)

Vu-Topper RM

Power method is applicable if the eigen values are _____.

- A. real and distinct**
- B. real and equal
- C. positive and distinct
- D. negative and distinct

Question No:54

(Marks:01)

Vu-Topper RM

The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeros along its _____.

- A. main diagonal**
- B. last column
- C. last row
- D. first row

Question No:55

(Marks:01)

Vu-Topper RM

Eigen values of a _____ matrix are all real.

- A. Symmetric**
- B. Antisymmetric
- C. Rectangular
- D. Triangular

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Question No:56

(Marks:01)

Vu-Topper RM

Simpson's rule is a numerical method that approximates the value of a definite integral by using polynomials.

A. Quadratic

B. Linear

C. Cubic

D. Quartic

Question No:57

(Marks:01)

Vu-Topper RM

The Trapezoidal rule is a numerical method that approximates the value of a_____.

A. Indefinite integral

B. Definite integral

C. Improper integral

D. Function

Question No:58

(Marks:01)

Vu-Topper RM

The Trapezoidal Rule is an improvement over using rectangles because we have much less "missing" from our calculations. We used _____ to model the curve in trapezoidal Rule.

A. straight lines

B. curves

C. parabolas

D. constant

Question No:59

(Marks:01)

Vu-Topper RM

Euler's Method numerically computes the approximate _____ of a function.

A. Antiderivative

B. Derivative

C. Error

D. Value

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Question No:60

(Marks:01)

Vu-Topper RM

If we wanted to find the value of a definite integral with an infinite limit, we can instead replace the infinite limit with a variable, and then take the limit as this variable goes to _____.

- A. Constant
- B. Finite
- C. Infinity**
- D. Zero

Question No:61

(Marks:01)

Vu-Topper RM

Let A be an $n \times n$ matrix. The number x is an eigenvalue of A if there exists a nonzero vector v such that _____.

- A. $Av = xv$
- B. $Ax = xv$**
- C. $Av + xv=0$
- D. $Av = Ax$

Question No:62

(Marks:01)

Vu-Topper RM

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

- A. Slow**
- B. Fast
- C. Both
- D. None

Question No:63

(Marks:01)

Vu-Topper RM

Numerical solution of $2/3$ up to four decimal places is _____.

- A. 0.667
- B. 0.6666
- C. 0.6667**
- D. 0.66667

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Question No:64

(Marks:01)

Vu-Topper RM

The first langrange polynomial with equally spaced nodes produced the formula for _____.

- A. Simpson's rule
- B. Trapezoidal rule**
- C. Newton's method
- D. Richardson's method

Question No:65

(Marks:01)

Vu-Topper RM

The Euler method is numerically unstable because of _____ convergence of error.

- A. Slow**
- B. Fast
- C. Moderate
- D. No

Question No:66

(Marks:01)

Vu-Topper RM

Generally, Adams methods are superior if output at _____ points is needed.

- A. Many**
- B. Two
- C. Single
- D. At most

Question No:67

(Marks:01)

Vu-Topper RM

Symbol used for forward differences is

- A. ∇
- B. Δ**
- C. δ
- D. μ

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Question No:68

(Marks:01)

Vu-Topper RM

The relationship between central difference operator and the shift operator is given by

- A. $\delta = E - E^{-1}$
- B. $\delta = E + E^{-1}$
- C. $\delta = E^{1/2} + E^{-1/2}$
- D. $\delta = E^{1/2} - E^{-1/2}$**

Question No:69

(Marks:01)

Vu-Topper RM

Muller's method requires -----starting points

- A. 1
- B. 2
- C. 3**
- D. 4

Question No:70

(Marks:01)

Vu-Topper RM

If we retain $r+1$ terms in Newton's forward difference formula, we obtain a polynomial of degree ---- agreeing with y_x at x_0, x_1, \dots, X_n .

- A. $r+2$
- B. $r+1$
- C. r**
- D. $r-1$

Question No:71

(Marks:01)

Vu-Topper RM

Octal number system has the base -----

- A. 2
- B. 8**
- C. 10
- D. 16

Question No:72

(Marks:01)

Vu-Topper RM

Newton's divided difference interpolation formula is used when the values of the are

- A. Equally spaced
- B. Not equally spaced
- C. Constant
- D. None of the above**

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Question No:73 (Marks:01) **Vu-Topper RM**

Rate of change of any quantity with respect to another can be modeled by

- A. An ordinary differential equation**
- B. A partial differential equation
- C. A polynomial equation
- D. None of the given choices

Question No:74 (Marks:01) **Vu-Topper RM**

Adam-Moulton P-C method is derived by employing

- A. Newton's backward difference interpolation formula**
- B. Newton's forward difference interpolation formula
- C. Newton's divided difference interpolation formula
- D. None of the given choices

Question No:75 (Marks:01) **Vu-Topper RM**

Bisection method is method

- A. Bracketing Method**
- B. Open
- C. Random
- D. none

Question No:76 (Marks:01) **Vu-Topper RM**

Newton Raphson method is method

- A. Bracketing Method
- B. Open**
- C. Random
- D. none

Question No:77 (Marks:01) **Vu-Topper RM**

Bisection and false position methods are also known as

- A. bracketing method**
- B. open method
- C. random
- D. None of these

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Question No:78

(Marks:01)

Vu-Topper RM

The Inverse of a matrix can only be found if the matrix is Singular

- A. Non singular
- B. Scalar
- C. None
- D. Diagonal**

Question No:79

(Marks:01)

Vu-Topper RM

If $f(x)$ contains trigonometric, exponential or logarithmic functions then this equation is known as

- A. Transcendental equation**
- B. Algebraic
- C. Polynomial
- D. Linear

Question No:80

(Marks:01)

Vu-Topper RM

In interpolation δ is used to represent the

- A. Forward difference
- B. Central difference**
- C. Backward difference
- D. None of these

Question No:81

(Marks:01)

Vu-Topper RM

The base of the decimal system is _____

- A. 10**
- B. 0
- C. 2
- D. 8

Question No:82

(Marks:01)

Vu-Topper RM

P in Newton's forward difference formula is defined as

- A. $P=(x-x_0)/h$**
- B. $P=(x+x_0)/h$
- C. $P=(x+x_n)/h$
- D. $P=(x-x_n)/h$

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Question No:83

(Marks:01)

Vu-Topper RM

Newton's divided difference interpolation formula is used when the values of the are

A. Equally spaced

B. Not equally spaced

C. Constant

D. None of the above

Question No:84

(Marks:01)

Vu-Topper RM

Given the following data

X	0	1	2	4
F(x)	1	1	2	5

The value of $f(2,4)$ is

A. 1.5

B. 3

C. 2

D. 1

Question No:85

(Marks:01)

Vu-Topper RM

Bisection and false position methods are also known as bracketing method and are always

Divergent

Convergent

Question No:86

(Marks:01)

Vu-Topper RM

Adams –Bashforth is a multistep method.

True

False

Question No:87

(Marks:01)

Vu-Topper RM

Multistep method does not improve the accuracy of the answer at each step.

False

True

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Question No:88

(Marks:01)

Vu-Topper RM

The need of numerical integration arises for evaluating the indefinite integral of a function that has no explicit antiderivative or whose antiderivative is not easy to obtain.

True

False

Question No:89

(Marks:01)

Vu-Topper RM

Euler's method is only useful for a few steps and small step sizes; however Euler's method together with Richardson extrapolation may be used to increase the _____.

Order and accuracy

Divergence

Question No:90

(Marks:01)

Vu-Topper RM

The absolute value of a determinant ($|\det A|$) is the product of the absolute values of the eigenvalues of matrix A

True

False

Question No:91

(Marks:01)

Vu-Topper RM

Eigenvectors of a symmetric matrix are orthogonal, but only for distinct eigenvalues.

True

False

Question No:92

(Marks:01)

Vu-Topper RM

The central difference method is finite difference method.

True

False

Question No:93

(Marks:01)

Vu-Topper RM

The dominant eigenvector of a matrix is an eigenvector corresponding to the eigenvalue of largest magnitude (for real numbers, smallest absolute value) of that matrix.

True

False

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Question No:94

(Marks:01)

Vu-Topper RM

Direct method can more rapid than iterative algorithms

True

False

Question No:95

(Marks:01)

Vu-Topper RM

By using determinants, we can easily check that the solution of the given system of linear equation exists and it is unique.

True

False

Question No:96

(Marks:01)

Vu-Topper RM

Differences methods find the _____ solution of the system.

Numerical

Analytical

Question No:97

(Marks:01)

Vu-Topper RM

Two matrices with the same characteristic polynomial need not be similar.

True

False

Question No:98

(Marks:01)

Vu-Topper RM

If A is a nxn triangular matrix (upper triangular, lower triangular) or diagonal matrix, the eigenvalues of A are the diagonal entries of A.

True

False

Question No:99

(Marks:01)

Vu-Topper RM

The Jacobi iteration _____, if A is strictly diagonally dominant.

Converges

Diverges

Question No:100

(Marks:01)

Vu-Topper RM

The Jacobi iteration converges, if A is strictly diagonally dominant.

True

False

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Question No:101

(Marks:01)

Vu-Topper RM

Exact solution of $2/3$ is not exists.

True

False

Question No:102

(Marks:01)

Vu-Topper RM

Euler's Method numerically computes the approximate derivative of a function.

True

False

Question No:103

(Marks:01)

Vu-Topper RM

An improper integral is the limit of a definite integral as an endpoint of the interval of integration approaches either a specified real number or ∞ or $-\infty$ or, in some cases, as both endpoints approach limits.

True

False

Question No:104

(Marks:01)

Vu-Topper RM

An indefinite integral may _____ in the sense that the limit defining it may not exist.

Diverge

Converge

Question No:105

(Marks:01)

Vu-Topper RM

In Runge–Kutta Method, we do not need to calculate higher order derivatives and find greater accuracy.

True

False

Question No:106

(Marks:01)

Vu-Topper RM

The need of numerical integration arises for evaluating the definite integral of a function that has no explicit _____ or whose antiderivative is not easy to obtain.

Antiderivative

Derivatives

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Question No:107

(Marks:01)

Vu-Topper RM

Generally, Adams methods are superior if output at many points is needed.

True

False

Question No:108

(Marks:01)

Vu-Topper RM

In Trapezoidal rule, the integral is computed on each of the sub-intervals by using linear interpolating formula, ie. For $n=1$ and then summing them up to obtain the desired integral.

True

False

Question No:109

(Marks:01)

Vu-Topper RM

The predictor-corrector method an implicit method. (multi-step methods)

True

False

Question No:110

(Marks:01)

Vu-Topper RM

In Simpson's Rule, we use parabolas to approximating each part of the curve. This proves to be very efficient as compared to Trapezoidal rule.

True

False

Question No:111

(Marks:01)

Vu-Topper RM

The dominant or principal eigenvector of a matrix is an eigenvector corresponding to the Eigen value of largest magnitude (for real numbers, largest absolute value) of that matrix,

True

False

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Question No:112 (Marks:01) **Vu-Topper RM**
Central Difference method is the finite difference method.

True
False

Question No:113 (Marks:01) **Vu-Topper RM**
Iterative algorithms can be more rapid than direct methods.

True
False

Question No:114 (Marks:01) **Vu-Topper RM**
Central difference method seems to be giving a better approximation, however it requires more computations.

True
False

Question No:115 (Marks:01) **Vu-Topper RM**
If x is an eigenvalue corresponding to eigenvalue of V of a matrix A .
If a is any constant, then $x - a$ is an eigen value corresponding to
eigen vector V is an of the matrix $A - aI$.

True
False

Question No:116 (Marks:01) **Vu-Topper RM**
For differences methods we require the set of values

True
False

Question No:117 (Marks:01) **Vu-Topper RM**
The Power method can be used only to find the eigenvalue of A that
is largest in absolute value—we call this eigenvalue the dominant
eigenvalue of A .

True
False

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Question No:118

(Marks:01)

Vu-Topper RM

The Gauss-Seidel method is applicable to strictly diagonally dominant or symmetric definite matrices A.

Positive

Negative

Question No:119

(Marks:01)

Vu-Topper RM

The Gauss-Seidel method is applicable to strictly diagonally dominant or symmetric positive definite matrices A.

True

False

Question No:120

(Marks:01)

Vu-Topper RM

An eigenvector V is said to be normalized if the coordinate of largest magnitude is equal to zero.

True

False

Question No:121

(Marks:01)

Vu-Topper RM

An eigenvector V is said to be normalized if the coordinate of largest magnitude is equal to _____.

Unity

Zero

Question No:122

(Marks:01)

Vu-Topper RM

The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeros along its main diagonal.

(Bronshtein and Semendyayev 1997, p. 892).

True

False

Question No:123

(Marks:01)

Vu-Topper RM

The Jacobi's method is a method of solving a matrix equation on a matrix that has ____ zeros along its main diagonal. (Bronshtein and Semendyayev 1997, p. 892)

No

At least one

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Question No:124

(Marks:01)

Vu-Topper RM

If $n \times n$ matrices A and B are similar, then they have the same eigenvalues (with the same multiplicities).

True

False

Question No:125

(Marks:01)

Vu-Topper RM

If $n \times n$ matrices A and B are similar, then they have the _____ eigenvalues (with the same multiplicities).

Same

Different

Question No:126

(Marks:01)

Vu-Topper RM

A 3×3 identity matrix have three and _____ Eigen values.

Same

Different

Question No:127

(Marks:01)

Vu-Topper RM

A 3×3 identity matrix have three and different eigen values.

True

False

Question No:128

(Marks:01)

Vu-Topper RM

Power method is applicable if the Eigen values are real and distinct.

True

False

Question No:129

(Marks:01)

Vu-Topper RM

Power method is applicable if the Eigen vectors corresponding the Eigen values are linearly

Independent

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Dependent

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Question No:130

(Marks:01)

Vu-Topper RM

The determinant of a diagonal matrix is the product of the diagonal elements.

True

False

Question No:131

(Marks:01)

Vu-Topper RM

If A is a nxn triangular matrix (upper triangular, lower triangular) or diagonal matrix , the eigenvalues of A are the diagonal entries of A.

True

False

Question No:132

(Marks:01)

Vu-Topper RM

The Power method can be used only to find the eigenvalue of A that is largest in absolute value—we call this eigenvalue the dominant eigenvalue of A.

True

False

Question No:133

(Marks:01)

Vu-Topper RM

Exact solution of $2/3$ is not exists.

True

False

Question No:134

(Marks:01)

Vu-Topper RM

The Jacobi's method is a method of solving a matrix equation on a matrix that has _____ zeros along its main diagonal.

No

Atleast one

Question No:135

(Marks:01)

Vu-Topper RM

While employing trapezoidal and Simpson rules to evaluate the double integral numerically, by using trapezoidal and Simpson rule over

Plane region

Real line

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Question No:136

(Marks:01)

Vu-Topper RM

1st ordered divided difference formula is defined as

$$y[x_0, x_1] = \frac{y_1 - y_0}{x_1 - x_0}$$

Question No:137

(Marks:01)

Vu-Topper RM

At which of the following points the Maximum value of 2nd derivative of function $f(x) = -(2/x)$ in the interval: $[1, 4]$ exists?

At $x=1$

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