

For Solved Visit **VU Answer**

MTH603 Final Term Papers By Waqar (File 2)

The image shows two screenshots of the VU Examination System (CLIENT) interface. The top screenshot displays Question No: 1 of 52, which asks for the width of an interval for integration. The bottom screenshot displays Question No: 2 of 52, which asks for the minimum interval for the root of a quadratic equation. Both questions have multiple-choice options and a timer showing 119:00 time left.

Question No: 1 of 52 Marks: 1 (Budgeted Time 1 Min)

In integrating $\int_0^{\frac{\pi}{2}} \sin x dx$, by dividing the interval into four equal parts, width of the interval should be

Answer (Please select your correct option)

- π
- $\frac{\pi}{2}$
- $\frac{\pi}{4}$
- $\frac{\pi}{8}$

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Question No: 2 of 52 Marks: 1 (Budgeted Time 1 Min)

The minimum interval in which the root of the equation $x^2 - 3x + 1 = 0$ lie is

Answer (Please select your correct option)

- (0, 1)
- (1, 2)
- (2, 4)
- (0, 2)

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Question No : 3 of 52 Marks: 1 (Budgeted Time 1 Min)

If the root of the given equation lies between a and b, then the first approximation to the root of the equation by bisection method is

Answer (Please select your correct option)

- $\frac{(a+b)}{2}$
- $\frac{(a-b)}{2}$
- $\frac{(b-a)}{2}$
- None of the given choices

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Question No : 4 of 52 Marks: 1 (Budgeted Time 1 Min)

Next approximation to the root of the given equation by bisection method can be found if

Answer (Please select your correct option)

- $f(2) = -7, f(3) = -8$
- $f(2) = -7, f(3) = 8$
- $f(2) = 7, f(3) = 8$
- None of the given choices

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The image shows two screenshots of a VU Examination System interface. The top screenshot displays Question No. 5 of 52. The question asks: "If $8 + 7i$ is the root of a quadratic equation $f(x) = 0$, then the other root of the given equation will be". Below the question, there are four radio button options: $8 - 7i$, $-8 - 7i$, $-8 + 7i$, and 8 . The bottom screenshot displays Question No. 6 of 52. The question asks: "For the equation $x^3 + 3x - 1 = 0$, the root of the equation lies in the interval.....". Below the question, there are four radio button options: $(1, 2)$, $(1, 3)$, $(0, 1)$, and $(1, 2)$. Both screenshots include a timer showing 119:00 Time Left and a navigation bar with buttons for back, forward, and search.

Question No : 5 of 52 Marks: 1 (Budgeted Time 1 Min)

If $8 + 7i$ is the root of a quadratic equation $f(x) = 0$, then the other root of the given equation will be

Answer (Please select your correct option)

- $8 - 7i$
- $-8 - 7i$
- $-8 + 7i$
- 8

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Question No : 6 of 52 Marks: 1 (Budgeted Time 1 Min)

For the equation $x^3 + 3x - 1 = 0$, the root of the equation lies in the interval.....

Answer (Please select your correct option)

- $(1, 2)$
- $(1, 3)$
- $(0, 1)$
- $(1, 2)$

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The screenshot displays two screenshots of the VU Examination System interface. The top screenshot shows Question No: 7 of 52. The question text is: "The quantity of error which is present in the statement of the problem itself ,before finding its solution is called". The answer options are: Inherent error, Local round off error, Local Truncation error, and Typing error. The bottom screenshot shows Question No: 8 of 52. The question text is: "If there are two roots of the equation and one root is $2 + 3i$, then the other root will be". The answer options are: $2 + 3i$, $2 - 3i$, $3 + 2i$, and $3 - 2i$. Both screenshots show a timer with 119:00 Time Left and a progress bar.

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The image shows two screenshots of a VU Examination System interface. The first screenshot displays Question No: 9 of 52, which asks "It can be verified that for any matrix [A]". The answer options are: $[A][A^{-1}] = [I]$, $I =$ identity matrix; $[A][A^{-1}] = [D]$, $D =$ diagonal matrix; $[A][A^{-1}] = [S]$, $S =$ symmetric matrix; and $[A][A^{-1}] = [Z]$, $Z =$ orthogonal matrix. The time left is 119:00. The second screenshot displays Question No: 10 of 52, which asks "In Crout's reduction method the elements of the main diagonal of upper triangular matrix are taken as". The answer options are: 0, 1, -1, None of the given choices, and None of the given choices. The time left is 118:00. Both screenshots show a Windows Internet Explorer browser window with the URL <http://localhost/VUTES/client/Instructions.aspx>.

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The image displays two screenshots of the VU Examination System interface. Both screenshots show a question in a web browser window.

Question 11: Question No : 11 of 52. Marks: 1 (Budgeted Time 1 Min). The question asks: "In Gauss-Seidel method, the new approximation calculated is". The answer options are: "Used in the next iteration for next approximation", "Instantly replaced by the previous one", "Never used again", and "None of the given choices".

Question 12: Question No : 12 of 52. Marks: 1 (Budgeted Time 1 Min). The question asks: "In relaxation method, for fast convergence all the terms should be taken to one side and then reordering should be done so that the largest coefficients should appear on the". The answer options are: "End of the rows", "Beginning of the rows", "Diagonal", and "None of the given choices".

Both screenshots show a timer at the bottom left indicating "Start Time: 11:25 PM" and "118:00 Time Left". The interface includes navigation buttons (back, forward, search) and a "Local intranet" status bar.

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The image shows two screenshots of the VU Examination System interface. The top screenshot displays Question No. 13 of 52, which asks: "Every square ----- matrix has an inverse." The answer options are: Singular, Non-singular, Zero, and None of the above. The bottom screenshot displays Question No. 14 of 52, which asks: "If $S = \begin{pmatrix} 1 & 2 & 3 \\ 6 & 4 & 7 \\ 8 & 6 & 5 \end{pmatrix}$, then" followed by four options: $S^{-1} = S^T$, $S^T = S$, $I = S$, and None of given choices. Both screenshots show a timer indicating 118:00 Time Left and a progress bar at 13 and 14 respectively.

Question No : 13 of 52 Marks: 1 (Budgeted Time 1 Min)

Every square ----- matrix has an inverse.

Answer (Please select your correct option)

- Singular
- Non-singular
- Zero
- None of the above

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Question No : 14 of 52 Marks: 1 (Budgeted Time 1 Min)

If $S = \begin{pmatrix} 1 & 2 & 3 \\ 6 & 4 & 7 \\ 8 & 6 & 5 \end{pmatrix}$, then

Answer (Please select your correct option)

- $S^{-1} = S^T$
- $S^T = S$
- $I = S$
- None of given choices

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The image shows two screenshots of a VU Examination System interface. The top screenshot displays Question No: 15 of 52, which asks: "A 3×3 matrix $[A]$ is said to be orthogonal if". The answer options are: $[A]^{-1}[A] = [I]$, $[A]^T[A] = [I]$, $[A]^T[A] = [O]$, and None of the given choices. The bottom screenshot displays Question No: 16 of 52, which asks: "Jacobi's method for finding the eigen values can be applied to". The answer options are: Real and symmetric matrix, Real and unsymmetric matrix, Real and complex unsymmetric matrix, and None of given choices. Both screenshots show a timer at 118:00 and a progress bar at 15 and 16 respectively.

Question No : 15 of 52 Marks: 1 (Budgeted Time 1 Min)

A 3×3 matrix $[A]$ is said to be orthogonal if

Answer (Please select your correct option)

- $[A]^{-1}[A] = [I]$
- $[A]^T[A] = [I]$
- $[A]^T[A] = [O]$
- None of the given choices

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Question No : 16 of 52 Marks: 1 (Budgeted Time 1 Min)

Jacobi's method for finding the eigen values can be applied to

Answer (Please select your correct option)

- Real and symmetric matrix
- Real and unsymmetric matrix
- Real and complex unsymmetric matrix
- None of given choices

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The image displays two screenshots of the VU Examination System (CLIENT) VUTES 6.5 interface, accessed via Windows Internet Explorer. Both screenshots show a question page with a timer and navigation controls.

Question 17: The question asks, "Lagrange's interpolation formula is used when the values of the independent variable are". The answer options are: Equally spaced, Not equally spaced, Constant, and None of the above. The timer shows 118:00 Time Left.

Question 18: The question asks, "If there are $(n+1)$ values of y corresponding to $(n+1)$ values of x , then we can represent the function $f(x)$ by a polynomial of degree". The answer options are: $n+2$, $n+1$, n , and $n-1$. The timer shows 118:00 Time Left.

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The image displays two screenshots of the VU Examination System interface. The top screenshot shows Question No. 19 of 52, which asks for the correct interpolation formula based on a table of data. The bottom screenshot shows Question No. 20 of 52, which asks for the correct value based on another table of data. Both screenshots include a timer showing 118:00 time left and a progress bar.

Question No : 19 of 52 Marks: 1 (Budgeted Time 1 Min)

Given the following data

x	1	3	7
$f(x)$	2	4	10

Answer (Please select your correct option)

- Newton's forward difference interpolation formula
- Newton's backward difference interpolation formula
- Lagrange's interpolation formula
- None of the given choices

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Question No : 20 of 52 Marks: 1 (Budgeted Time 1 Min)

Given the following data

x	0	1	4
$y = f(x)$	2	1	4

Answer (Please select your correct option)

- 1
- 1
- 2
- 4

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The image displays two screenshots of a VU Examination System interface. The top screenshot shows Question No: 21 of 52. The question asks for the relationship between the differential operator and the backward difference operator. The answer options are:

- $hD = -\log(1 + \nabla)$
- $hD = \log(1 + \nabla)$
- $hD = \log(1 - \nabla)$
- $hD = -\log(1 - \nabla)$

The bottom screenshot shows Question No: 22 of 52. The question asks for the definition of the shift operator. The answer options are:

- $Ef(x) = f(x - h)$
- $Ef(x) = -f(x - h)$
- $Ef(x) = -f(x + h)$
- $Ef(x) = f(x + h)$

Both screenshots show a timer indicating 118:00 Time Left and a progress bar. The interface includes a navigation bar with buttons for back, forward, and search, and a status bar at the bottom showing 'Local intranet' and '100%' zoom.

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http://localhost/VUTES/client/Instructions.aspx

File Edit View Favorites Tools Help

Examination VU Examination System (...)

Question No : 23 of 52 Marks: 1 (Budgeted Time 1 Min)

For the given table of values

x	0.1	0.2	0.3	0.4	0.5	0.6
f(x)	0.425	0.475	0.400	0.452	0.525	0.575

using two-point equation the value of $f'(0.5)$ is.....:

Answer (Please select your correct option)

- 0.73
- 0.75
- 0.5
- 0.5

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Local intranet

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http://localhost/VUTES/client/Instructions.aspx

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Examination VU Examination System (...)

Question No : 24 of 52 Marks: 1 (Budgeted Time 1 Min)

For the given table of values

x	0.1	0.2	0.3	0.4	0.5	0.6
f(x)	0.425	0.475	0.400	0.452	0.525	0.575

Answer (Please select your correct option)

- 17.5
- 12.5
- 7.5
- 2.3

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Local intranet

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The image shows two screenshots of a VU Examination System interface. The first screenshot displays Question No: 25 of 52, which asks for the magnitude of truncation error in Milne's predictor formula. The question is worth 1 mark and has a budgeted time of 1 minute. The answer options are:

- $\frac{1}{90} h \Delta^4 y_0'$
- $\frac{1}{90} h \Delta^3 y_0'$
- $\frac{28}{90} h \Delta^3 y_0'$
- $\frac{28}{90} h \Delta^4 y_0'$

The second screenshot displays Question No: 26 of 52, which asks for the number of times a function $F(x)$ vanishes in an interval I , given that I is spanned by $x_0, x_1, x_2, x_3, x_4, x_5, x_6, x_7, \bar{x}$. The question is worth 1 mark and has a budgeted time of 1 minute. The answer options are:

- 6
- 9
- 7
- 8

Both screenshots show a timer indicating 118:00 time left and a progress bar at 25%.

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The image shows two screenshots of the VU Examination System (CLIENT) VUTES 6.5 interface. The top screenshot displays Question No: 27 of 52, which asks for the estimation of $y'(1.3)$ using a differential operator based on a table of values. The bottom screenshot displays Question No: 28 of 52, which asks for the form of $f(x)$ used in the Trapezoidal rule.

Question No: 27 of 52 Marks: 1 (Budgeted Time 1 Min)

From the following table of values:

x	1.3	1.5	1.7	1.9	2.1	2.3
y	2.9648	2.6599	2.3333	1.9922	1.6442	1.2969

Estimation of $y'(1.3)$ will be done using the formula of differential operator in terms of

Answer (Please select your correct option)

- Backward difference operator
- Central difference operator
- None of the given choices
- Forward difference operator

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Question No: 28 of 52 Marks: 1 (Budgeted Time 1 Min)

While deriving Trapezoidal rule, we approximate $f(x)$ in the form

Answer (Please select your correct option)

- $ax + b$
- $ax^2 + bx + c$
- $ax^3 + bx^2 + cx + d$
- $ax^4 + bx^3 + cx^2 + dx + e$

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The image shows two screenshots of a VU Examination System interface. The first screenshot displays Question No. 29 of 52, which asks for the form of a function $f(x)$ approximated by Simpson's 3/8 rule. The answer options are: $ax+b$, ax^2+bx+c , ax^3+bx^2+cx+d , and $ax^4+bx^3+cx^2+dx+e$. The second screenshot displays Question No. 30 of 52, which asks for the order of polynomial for which the two-segment trapezoidal rule is exact. The answer options are: first, second, third, and fourth. Both screenshots show a timer set to 118:00 and a progress bar at 29 and 30 respectively. The interface includes a navigation bar with 'File', 'Edit', 'View', 'Favorites', 'Tools', and 'Help' menus, and a status bar at the bottom indicating 'Local intranet' and '100%' zoom.

Question No : 29 of 52 Marks: 1 (Budgeted Time 1 Min)

While deriving Simpson's 3/8 rule, we approximate $f(x)$ in the form

Answer (Please select your correct option)

- $ax+b$
- ax^2+bx+c
- ax^3+bx^2+cx+d
- $ax^4+bx^3+cx^2+dx+e$

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Question No : 30 of 52 Marks: 1 (Budgeted Time 1 Min)

Two segment trapezoidal rule of integration is exact for integrating at most order polynomial.

Answer (Please select your correct option)

- first
- second
- third
- fourth

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Examination VU Examination System (... x)

Question No : 31 of 52 Marks: 1 (Budgeted Time 1 Min)

To apply Simpson's $\frac{3}{8}$ rule, the number of intervals can be...

Answer (Please select your correct option)

- 4
- 7
- 9
- 8

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Local intranet

VU Examination System (CLIENT) VUTES 6.5 Fall 2012 (FinalTerm) - Windows Internet Explorer

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File Edit View Favorites Tools Help

Examination VU Examination System (... x)

Question No : 31 of 52 Marks: 1 (Budgeted Time 1 Min)

To apply Simpson's $\frac{3}{8}$ rule, the number of intervals can be...

Answer (Please select your correct option)

- 4
- 7
- 9
- 8

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System is busy! Please wait.

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Local intranet

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The image displays two screenshots of a VU Examination System interface. The top screenshot shows Question No: 32 of 52. The question text is: "Romberg's integration method is ----- than Trapezoidal and Simpson's rule." The answer options are: "none of the given choices", "more accurate", "less accurate", and "equally accurate". The bottom screenshot shows Question No: 33 of 52. The question text is: "The global error in Simpson's 3/8 rule is of". The answer options are: " $o(h^2)$ ", " $o(h^3)$ ", " $o(h^4)$ ", and "None of these choices". Both screenshots show a timer indicating 118:00 Time Left and a progress bar at 32 and 33 respectively. The interface includes a navigation bar with "File", "Edit", "View", "Favorites", "Tools", and "Help" menus, and a status bar at the bottom showing "Local intranet" and "100%" zoom.

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Examination VU Examination System (... x)

Question No : 34 of 52 Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

- An ordinary differential equation
- A partial differential equation
- A polynomial equation
- None of the given choices

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Examination VU Examination System (... x)

Question No : 35 of 52 Marks: 1 (Budgeted Time 1 Min)

A third order ordinary differential equation can be reduced to a system of ----- first order ordinary differential equations.

Answer (Please select your correct option)

- 0
- 1
- 2
- 3

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The image shows two screenshots of a VU Examination System interface. The top screenshot displays Question No: 36 of 52, which asks for the solution of the differential equation $\frac{dy}{dt} = \frac{y-t}{y+t}$ with the initial condition $y=1.02$ at $t=0.02$. The question is worth 1 mark and has a budgeted time of 1 minute. The answer options are 3.0392, 2.0392, 1.0392, and 0.0392. The bottom screenshot displays Question No: 37 of 52, which asks for the value of k_1 in the fourth-order Runge-Kutta method. The question is worth 1 mark and has a budgeted time of 1 minute. The answer options are $k_1 = hf(x_n, y_n)$, $k_1 = 2hf(x_n, y_n)$, $k_1 = 3hf(x_n, y_n)$, and None of the given choices. Both screenshots show a timer indicating 118:00 time left and a progress bar at 36% and 37% respectively.

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The image shows two screenshots of a VU Examination System interface. The first screenshot displays Question No: 38 of 52, which asks for the coefficient k_4 in the fourth-order Runge-Kutta method. The question text is: "In fourth order Runge-Kutta method, k_4 is given by". The answer options are: $k_4 = hf(x_n + 2h, y_n + 2k_3)$, $k_4 = hf(x_n - h, y_n - k_3)$, $k_4 = hf(x_n + h, y_n + k_3)$, and "None of the given choices". The second screenshot displays Question No: 39 of 52, which asks for the truncation error in Adam's predictor formula. The question text is: "The truncation error in Adam's predictor formula is". The answer options are: $\frac{251}{720} h^5 y_n^{(5)}$, $\frac{251}{720} h^5 y_{n+1}^{(5)}$, $\frac{19}{720} h^5 y_{n+1}^{(5)}$, and $\frac{19}{720} h^5 y_n^{(5)}$. Both screenshots show a timer at 118:00 and a progress bar at 38 and 39 respectively. The interface includes a navigation bar with "File", "Edit", "View", "Favorites", "Tools", and "Help" menus, and a status bar at the bottom with "Local intranet" and "100%" zoom.

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The screenshot shows a web browser window titled "VU Examination System (CLIENT) VUTES 6.5 Fall 2012 (FinalTerm) - Windows Internet Explorer". The address bar shows "http://localhost/VUTES/client/Instructions.aspx". The page content includes:

Question No : 40 of 52 Marks: 1 (Budgeted Time 1 Min)

In solving the differential equation
 $y' = x^2 + 2y$; $y(1) = 3$
 $h = 1$, By Euler's method $y(2)$ is calculated as

Answer (Please select your correct option)

- 4
- 6
- 8
- 10

Start Time: 11:25 PM
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Navigation buttons: Home, Back, Forward, Stop, Print, Help.

The screenshot shows a web browser window titled "VU Examination System (CLIENT) VUTES 6.5 Fall 2012 (FinalTerm) - Windows Internet Explorer". The address bar shows "http://localhost/VUTES/client/Instructions.aspx". The page content includes:

Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

Obtain numerically the solution of
 $y' = x + y^2$, $y(0) = 2$
Using Euler's method to find y at $x=1$, $h=1$

Answer (Please click here to Add Answer)

Rich text editor toolbar: Bold, Italic, Underline, Text Color, Background Color, Bulleted List, Numbered List, Indent, Outdent, Undo, Redo, Link, Unlink, Source, Print, Help.

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Navigation buttons: Home, Back, Forward, Stop, Print, Help.

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The image shows two screenshots of a VU Examination System interface. The top screenshot displays Question No: 42 of 52, with a marks value of 2 (Budgeted Time 4 Min). The question text is: "If $f(0) = 3$ and $f(1) = 9$, then find the next approximate value of the function using secant method". Below the question is an answer field with a toolbar and a "Please click here to Add Answer" link. The bottom screenshot displays Question No: 43 of 52, with a marks value of 2 (Budgeted Time 4 Min). The question text is: "Write a backward difference formula of $D^2 f(x)$ ". Below the question is an answer field with a toolbar and a "Please click here to Add Answer" link. Both screenshots show a timer at the bottom left indicating "Start Time 11:25 PM" and "118:00 Time Left". A progress bar at the bottom right shows the current question number (42 and 43 respectively) and navigation buttons.

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The image displays two screenshots of the VU Examination System interface. Both screenshots are viewed through a Windows Internet Explorer browser window.

Top Screenshot (Question No: 44 of 52):
- Question: Write a formula for Simpson's 1/3 rule.
- Marks: 2 (Budgeted Time 4 Min)
- Answer field: A rich text editor with a toolbar and a large empty text area.
- Timer: Start Time 11:25 PM, Time Left 118:00.
- Progress: 44

Bottom Screenshot (Question No: 45 of 52):
- Question: Evaluate the integral $\int_3^5 (\log x + 2) dx$
Using Simpson's 3/8 rule
Take $h=1$
- Marks: 3 (Budgeted Time 6 Min)
- Answer field: A rich text editor with a toolbar and a large empty text area.
- Timer: Start Time 11:25 PM, Time Left 118:00.
- Progress: 45

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The image displays two screenshots of the VU Examination System interface. Both screenshots show a question in a web browser window.

Top Screenshot:

- Question No: 46 of 52
- Marks: 3 (Budgeted Time 6 Min)
- Question text: Write the two steps of solving the linear equations using Gaussian Elimination method
- Answer area: A large text input field with a rich text editor toolbar.
- Timer: Start Time 11:25 PM, 118:00 Time Left
- Progress: 46

Bottom Screenshot:

- Question No: 47 of 52
- Marks: 3 (Budgeted Time 6 Min)
- Question text: Use Runge-Kutta Method of order four to find the values of k_1 and k_2 for the initial value problem $y' = yx^2, y(0) = 1, h = 0.1$
- Answer area: A large text input field with a rich text editor toolbar.
- Timer: Start Time 11:25 PM, 118:00 Time Left
- Progress: 47

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The image shows two screenshots of a VU Examination System interface. Both screenshots are displayed in a Windows Internet Explorer browser window with the address bar showing `http://localhost/VUTES/client/Instructions.aspx`.

Top Screenshot (Question No: 48 of 52):
The question asks to evaluate the integral $\int_0^3 (x^2 + x) dx$ using the Trapezoidal rule with $h=1$. The marks are 3 and the budgeted time is 6 minutes. The answer field is empty, and the time left is 118:00.

Bottom Screenshot (Question No: 49 of 52):
The question asks to evaluate the integral $\int_0^3 (x+1) dx$ using Simpson's 3/8 rule. The marks are 5 and the budgeted time is 10 minutes. The answer field is empty, and the time left is 118:00.

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Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

Find the dominant eigenvalue and the corresponding eigenvector of the matrix

$$\begin{bmatrix} 8 & 1 & 2 \\ 0 & 10 & -1 \\ 6 & 2 & 15 \end{bmatrix}$$

by Power Method with vector $V_0 = (1, 1, 1)^T$ as the initial vector.

Answer ([Please click here to Add Answer](#))

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Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

From the following table of values, construct backward difference table.

x	0.1	0.2	0.3	0.4
$f(x)$	1.10517	1.22140	1.34986	1.49182

Answer ([Please click here to Add Answer](#))

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The screenshot shows a web browser window titled "VU Examination System (CLIENT) VUTES 6.5 Fall 2012 (FinalTerm) - Windows Internet Explorer". The address bar shows "http://localhost/VUTES/client/Instructions.aspx". The browser has two tabs: "Examination" and "VU Examination System (...)".

The main content area displays "Question No : 52 of 52" and "Marks: 5 (Budgeted Time 10 Min)". The question text is: "Evaluate the integral $\int_0^4 (x^2 + 1) dx$. Using Simpson's 1/3 rule. Take h=1".

Below the question is an "Answer (Please click here to Add Answer)" section with a rich text editor. The editor has a toolbar with options for font color, background color, bold, italic, underline, link, unlink, list, and indent. The editor is currently empty.

At the bottom of the interface, there is a "Start Time: 11:25 PM" and a "Time Left" counter showing "118:00". There are also navigation buttons (back, forward, search) and a "Local intranet" indicator.

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