Code No: A109100203 **Set No. 1**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, March – 2011

MATHEMATICAL METHODS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. The eigen values of a real symmetric matrix are [ ]
   (a) imaginary (b) 0 (c) real (d) can't be decided

2. A square matrix A is unitary if [ ]
   (a) $A^{-1} = -\overline{A^T}$ (b) $A^{-1} = \overline{A^T}$ (c) $A^{-1} = A^T$ (d) $A^{-1} = -A^T$

3. The interval in which the root lies for f(x) = $x^3 - 2x - 5 = 0$ is [ ]
   (a) (1, 2) (b) (3, 5) (c) (5, 1) (d) (2, 3)

4. μ = [ ]
   (a) $(E^{1/2} - E^{-1/2})$ (b) $\frac{1}{2}(E^{1/2} + E^{-1/2})$
   (c) $\frac{1}{2}(E^{1/2} - E^{-1/2})$ (d) $(E^{1/2} + E^{-1/2})$

5. $\int_0^2 x\,dx$, if h= .5, by Simpson's 1/3rd rule [ ]
   (a) 2.2 (b) 2.45 (c) 1.75 (d) 2.0

6. If A is any square matrix then A + A^T is [ ]
   (a) symmetric (b) skew symmetric (c) orthogonal (d) unitary

7. The eigen values of $\begin{bmatrix} 4 & 1-3i \\ 1+3i & 7 \end{bmatrix}$ are [ ]
   (a) 2, 9 (b) 3, 8 (c) 4, 7 (d) 5, 6

8.

x	1	3	4	7
F(x)	0…	6	12	42

   use Lagranges formula to find the polynomial [ ]
   (a) $x^2 + x$ (b) $x^3 - 2x$ (c) $x^2 - x$ (d) $x^2 - x + 2$

9. If y = e^{ax}, then a = [ ]
   (a) $\frac{\Sigma x_i y_i}{\Sigma x_i}$ (b) $\frac{\Sigma x_i \log y_i}{\Sigma x_i^2}$ (c) $\frac{\Sigma y_i}{\Sigma x_i}$ (d) $\frac{\Sigma x_i y_i}{\Sigma x_i^2}$

Cont....2

10. If y(0) = 0, y(.25) = .5, y(.5) = .7 y(.75) = .8 y(1) = .9 by simpson's 1/3rd rule $\int_0^1 ydx =$ [ ]

(a) .600 (b) .625 (c) .65 (d) .75

II Fill in the blanks

11. The diagonal elements of a skew symmetric matrix are_____

12. The missing term is _____

x	1	2	3	4	5
y	2	5	7	-	32

13.

x	3	4	5	6
$f(x)$	6	24	60	120

, ∇y_0 (if $x_0 = 6$) = _____

14. If y= ae^{bx} then first normal equation is _____

15. Write the the formula Trapezoidal rule _____

16. The square roots of the eigen values $A^T A$ are called _____ of A

17. The index and signature of quadratic form $5x^2 + 2y^2 + 2z^2 + 6yz$ are _____

18. If x_0 = .65 of $x^3 + x^2 - 1 = 0$ by iteration method for the root x_1 = _____

19. The error in Simpson's 1/3rd rule is of order _____

20. _____ will be minimized in least squares method

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Code No: A109100203 **Set No. 2**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, March – 2011

MATHEMATICAL METHODS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. μ = [ ]

   (a) $(E^{1/2} - E^{-1/2})$ (b) $\frac{1}{2}(E^{1/2} + E^{-1/2})$

   (c) $\frac{1}{2}(E^{1/2} - E^{-1/2})$ (d) $(E^{1/2} + E^{-1/2})$

2. $\int_0^2 x\,dx$, if h= .5, by Simpson's 1/3rd rule [ ]

   (a) 2.2 (b) 2.45 (c) 1.75 (d) 2.0

3. If A is any square matrix then A + A^T is [ ]

   (a) symmetric (b) skew symmetric (c) orthogonal (d) unitary

4. The eigen values of $\begin{bmatrix} 4 & 1-3i \\ 1+3i & 7 \end{bmatrix}$ are [ ]

   (a) 2, 9 (b) 3, 8 (c) 4, 7 (d) 5, 6

5.

x	1	3	4	7
F(x)	0…	6	12	42

   use Lagranges formula to find the polynomial [ ]

   (a) $x^2 + x$ (b) $x^3 - 2x$ (c) $x^2 - x$ (d) $x^2 - x + 2$

6. If y = e^{ax}, then a = [ ]

   (a) $\frac{\Sigma x_i y_i}{\Sigma x_i}$ (b) $\frac{\Sigma x_i \log y_i}{\Sigma x_i^2}$ (c) $\frac{\Sigma y_i}{\Sigma x_i}$ (d) $\frac{\Sigma x_i y_i}{\Sigma x_i^2}$

7. If y(0) = 0, y(.25) = .5, y(.5) = .7 y(.75) = .8 y(1) = .9 by simpson's 1/3rd rule $\int_0^1 y\,dx$ = [ ]

   (a) .600 (b) .625 (c) .65 (d) .75

8. The eigen values of a real symmetric matrix are [ ]

   (a) imaginary (b) 0 (c) real (d) can't be decided

Cont....2

9. A square matrix A is unitary if [ ]
(a) $A^{-1} = -\overline{A^T}$ (b) $A^{-1} = \overline{A^T}$ (c) $A^{-1} = A^T$ (d) $A^{-1} = -A^T$

10. The interval in which the root lies for f(x) = $x^3 - 2x - 5 = 0$ is [ ]
(a) (1, 2) (b) (3, 5) (c) (5, 1) (d) (2, 3)

II Fill in the blanks

11. If y= ae^{bx} then first normal equation is _____

12. Write the the formula Trapezoidal rule _____

13. The square roots of the eigen values $A^T A$ are called _____ of A

14. The index and signature of quadratic form $5x^2 + 2y^2 + 2z^2 + 6yz$ are _____

15. If x_0 = .65 of $x^3 + x^2 - 1 = 0$ by iteration method for the root x_1 = _____

16. The error in Simpson's 1/3rd rule is of order _____

17. _____ will be minimized in least squares method

18. The diagonal elements of a skew symmetric matrix are_____

19. The missing term is _____

x	1	2	3	4	5
y	2	5	7	-	32

20.

x	3	4	5	6
$f(x)$	6	24	60	120

, ∇y_0 (if $x_0 = 6$) = _____

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Code No: A109100203 **Set No. 3**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, March – 2011

MATHEMATICAL METHODS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. If A is any square matrix then A + A^T is [ ]
   (a) symmetric (b) skew symmetric (c) orthogonal (d) unitary

2. The eigen values of $\begin{bmatrix} 4 & 1-3i \\ 1+3i & 7 \end{bmatrix}$ are [ ]
   (a) 2, 9 (b) 3, 8 (c) 4, 7 (d) 5, 6

3. [ ]

x	1	3	4	7
F(x)	0…	6	12	42

   use Lagranges formula to find the polynomial
   (a) $x^2 + x$ (b) $x^3 - 2x$ (c) $x^2 - x$ (d) $x^2 - x + 2$

4. If y = e^{ax}, then a = [ ]
   (a) $\frac{\Sigma x_i y_i}{\Sigma x_i}$ (b) $\frac{\Sigma x_i \log y_i}{\Sigma x_i^2}$ (c) $\frac{\Sigma y_i}{\Sigma x_i}$ (d) $\frac{\Sigma x_i y_i}{\Sigma x_i^2}$

5. If y(0) = 0, y(.25) = .5, y(.5) = .7 y(.75) = .8 y(1) = .9 by simpson's 1/3rd rule $\int_0^1 y dx =$ [ ]
   (a) .600 (b) .625 (c) .65 (d) .75

6. The eigen values of a real symmetric matrix are [ ]
   (a) imaginary (b) 0 (c) real (d) can't be decided

7. A square matrix A is unitary if [ ]
   (a) $A^{-1} = -\overline{A^T}$ (b) $A^{-1} = \overline{A^T}$ (c) $A^{-1} = A^T$ (d) $A^{-1} = -A^T$

8. The interval in which the root lies for f(x) = $x^3 - 2x - 5 = 0$ is [ ]
   (a) (1, 2) (b) (3, 5) (c) (5, 1) (d) (2, 3)

9. μ = [ ]
   (a) $(E^{1/2} - E^{-1/2})$ (b) $\frac{1}{2}(E^{1/2} + E^{-1/2})$
   (c) $\frac{1}{2}(E^{1/2} - E^{-1/2})$ (d) $(E^{1/2} + E^{-1/2})$

Cont....2

10. $\int_0^2 xdx$, if h= .5, by Simpson's 1/3rd rule [ ]

(a) 2.2 (b) 2.45 (c) 1.75 (d) 2.0

II Fill in the blanks

11. The square roots of the eigen values $A^T A$ are called _____ of A

12. The index and signature of quadratic form $5x^2 + 2y^2 + 2z^2 + 6yz$ are _____

13. If x_0 = .65 of $x^3 + x^2 - 1 = 0$ by iteration method for the root x_1 = _____

14. The error in Simpson's 1/3rd rule is of order _____

15. _____ will be minimized in least squares method

16. The diagonal elements of a skew symmetric matrix are_____

17. The missing term is _____

x	1	2	3	4	5
y	2	5	7	-	32

18.

x	3	4	5	6
$f(x)$	6	24	60	120

, ∇y_0 (if $x_0 = 6$) = _____

19. If y= ae^{bx} then first normal equation is _____

20. Write the the formula Trapezoidal rule _____

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Code No: A109100203 **Set No. 4**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

I B.Tech. II Mid Examinations, March – 2011

MATHEMATICAL METHODS

Objective Exam

Name: _____ Hall Ticket No. | | | | | | A | | | | |

Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I. Choose the correct alternative:

1. [ ]

x	1	3	4	7
F(x)	0…	6	12	42

use Lagranges formula to find the polynomial

(a) $x^2 + x$ (b) $x^3 - 2x$ (c) $x^2 - x$ (d) $x^2 - x + 2$

2. If y = e^{ax}, then a = [ ]

(a) $\frac{\Sigma x_i y_i}{\Sigma x_i}$ (b) $\frac{\Sigma x_i \log y_i}{\Sigma x_i^2}$ (c) $\frac{\Sigma y_i}{\Sigma x_i}$ (d) $\frac{\Sigma x_i y_i}{\Sigma x_i^2}$

3. If y(0) = 0, y(.25) = .5, y(.5) = .7 y(.75) = .8 y(1) = .9 by simpson's 1/3rd rule $\int_0^1 y dx$ = [ ]

(a) .600 (b) .625 (c) .65 (d) .75

4. The eigen values of a real symmetric matrix are [ ]

(a) imaginary (b) 0 (c) real (d) can't be decided

5. A square matrix A is unitary if [ ]

(a) $A^{-1} = -\overline{A^T}$ (b) $A^{-1} = \overline{A^T}$ (c) $A^{-1} = A^T$ (d) $A^{-1} = -A^T$

6. The interval in which the root lies for f(x) = $x^3 - 2x - 5 = 0$ is [ ]

(a) (1, 2) (b) (3, 5) (c) (5, 1) (d) (2, 3)

7. μ = [ ]

(a) $(E^{1/2} - E^{-1/2})$ (b) $\frac{1}{2}(E^{1/2} + E^{-1/2})$ (c) $\frac{1}{2}(E^{1/2} - E^{-1/2})$ (d) $(E^{1/2} + E^{-1/2})$

8. $\int_0^2 x dx$, if h= .5, by Simpson's 1/3rd rule [ ]

(a) 2.2 (b) 2.45 (c) 1.75 (d) 2.0

9. If A is any square matrix then A + A^T is [ ]

(a) symmetric (b) skew symmetric (c) orthogonal (d) unitary

10. The eigen values of $\begin{bmatrix} 4 & 1-3i \\ 1+3i & 7 \end{bmatrix}$ are [ ]

(a) 2, 9 (b) 3, 8 (c) 4, 7 (d) 5, 6

Cont....2

II Fill in the blanks

11. If x_0 = .65 of $x^3 + x^2 - 1 = 0$ by iteration method for the root x_1 = _____

12. The error in Simpson's 1/3rd rule is of order _____

13. _____ will be minimized in least squares method

14. The diagonal elements of a skew symmetric matrix are_____

15. The missing term is _____

x	1	2	3	4	5
y	2	5	7	-	32

16.

x	3	4	5	6
$f(x)$	6	24	60	120

, ∇y_0 (if $x_0 = 6$) = _____

17. If y= ae^{bx} then first normal equation is _____

18. Write the the formula Trapezoidal rule _____

19. The square roots of the eigen values $A^T A$ are called _____ of A

20. The index and signature of quadratic form $5x^2 + 2y^2 + 2z^2 + 6yz$ are _____

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