

Unit Test Mathematics 2: Computer Oriented Numerical Methods

* Required

1. Class with division *

2. Name of the Student *

3. Roll No. *

4. The absolute error between 24 and 23.78 is *

Mark only one oval.

☐ -0.22

☐ 0.22

☐ 0.022

☐ 2.2

5. The significant digits in $x=0.02138$ and approximate number $=0.02144$ are *

Mark only one oval.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

6. If the relative error is 0.0345, the percentage error is *

Mark only one oval.

- ☐ 0.345
- ☐ 3.45
- ☐ 34.5
- ☐ 0.00345

7. In the Gauss elimination method for solving a system of linear algebraic equations, triangularization leads to *

Mark only one oval.

- ☐ Diagonal matrix
- ☐ Lower triangular matrix
- ☐ Upper triangular matrix
- ☐ Singular matrix

8. If $f(x)$ is a real continuous function in $[a,b]$, and $f(a)f(b)<0$, then for $f(x)=0$, there is (are) _____ in the domain. *

Mark only one oval.

- ☐ one root
- ☐ no root
- ☐ atleastone root
- ☐ an undeterminable number of roots

9. What is the drawback of finding inverse by adjoint method? *

Mark only one oval.

- ☐ It needs a lot of calculations
- ☐ It gives incorrect answers
- ☐ It assumes certain values
- ☐ It is solved by approximating some values

10. Find $f(x_0, y_0)$, given that $y'=x+y$, $y(0)=2$ *

Mark only one oval.

- ☐ (1,2)
- ☐ (2,1)
- ☐ 2
- ☐ -2

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

Mark only one oval.

- ☐ 1.5
- ☐ 2.067
- ☐ 2.167
- ☐ 3

12. Using Euler's Method, find the value of $y(0.1)$, given that $dy/dx = 1 + xy$ with $y(0) = 2$ *

Mark only one oval.

- ☐ 2.0
- ☐ 2.1
- ☐ 1.9
- ☐ 0

13. Using Bisection method find the second iteration of the root of $x^2 - 5 = 0$ between 2 and 3 *

Mark only one oval.

- ☐ 2.5
- ☐ 2.25
- ☐ 2.125
- ☐ 2.75

14. $(xf(y)-yf(x))/(f(y)-f(x))$ is the iterative formula for *

Mark only one oval.

- ☐ Runge Kutta Method
- ☐ Taylor's Method
- ☐ Bisection Method
- ☐ Regula-Falsi Method

15. Which of the following method is used to solve linear equations? *

Mark only one oval.

- ☐ Ramanujan Method
- ☐ Bisection Method
- ☐ Trapezoidal Rule
- ☐ Matrix Inversion Method

16. The root of the equation $x^3+8x-1=0$ is between *

Mark only one oval.

- ☐ 0 and 1
- ☐ 1 and 2
- ☐ 2 and 3
- ☐ 3 and 4

17. The Newton-Raphson Method fails when *

Mark only one oval.

- ☐ Option $f'(x)$ is negative
- ☐ $f'(x)$ is positive
- ☐ $f'(x)$ is zero
- ☐ never fails

18. Every polynomial equation of the n th degree has following roots *

Mark only one oval.

- ☐ n
- ☐ $n+1$
- ☐ $n-1$
- ☐ $n+2$

19. The convergence of which of the following method is sensitive to starting value? *

Mark only one oval.

- ☐ False position
- ☐ Gauss seidal method
- ☐ Bisection Method
- ☐ Newton-Raphson method

20. Non square matrices do not have inverse. *

Mark only one oval.

- ☐ True
- ☐ False

21. The inverse of a matrix exists if and only if it is a non-singular matrix. *

Mark only one oval.

- ☐ True
☐ False

22. Which of the following is an iterative method? *

Mark only one oval.

- ☐ Gauss seidal
☐ Gauss Elimination
☐ Cramer's Rule
☐ Matrix Inversion Method

23. Which of the following statements applies to the bisection method used for finding roots of functions? *

Mark only one oval.

- ☐ Converges within a few iterations
☐ Guaranteed to work for all continuous functions
☐ Is faster than the Newton-Raphson method
☐ Requires that there be no error in determining the sign of the function

24. Newton-Raphson method is applicable to the solution of *

Mark only one oval.

- ☐ Both algebraic and transcendental Equations
☐ Both algebraic and transcendental and also used when the roots are complex
☐ Algebraic equations only
☐ Transcendental equations only

25. 2 and 4 such that $f(2) = 4$ and $f(4) = 16$ are appropriate initial points for the bisection method. *

Mark only one oval.

☐ True

☐ False

26. *

Mark only one oval.

☐ 4.124

☐ 4.1239

☐ 4.1238

☐ 4.13

27. The number of significant digits of 0.0001436 are *

Mark only one oval.

☐ 3

☐ 4

☐ 7

☐ 8

28. *

The determinant of the matrix $\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$ is

Mark only one oval.

- ☐ 6
- ☐ -6
- ☐ 40
- ☐ 20

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