

MTH101 QUIZ 2

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CS619 Project:

SRS ,DD, VIVA preparation and Final Deliverable

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Question No 1:

Why the equation: $x^2 + 8 = 0$ does not have approximate solution while using Newton's method

- x^2 will always be negative
- x^2 will always be nonnegative

Question NO 2:

What are critical points of the function $f(x) = x - 1$?

- No critical point
- None of these
- $x = 1$
- $x = 0$

Question No 3:

Let A be the area of a rectangle under a continuous function $f(x)$ over a closed interval $(a, b]$. If this area is divided into 'n' sub-rectangles, then width of each approximated sub-intervals is ____

- $(a-b)/2$
- $(a-b)/n$
- $(b-a)/2n$
- $(b-a)/n$

Question No 4:

Increase in number of rectangles under any continuous function gives _____ approximation to area.

- better
- Poor
- no change in
- None of these

Question No 5:

If Newton's Method succeeded to get the approximate solution of an equation, then which of the following is NOT true about it.

- The slope of the tangent line (at any approximated point) must be non-zero.
- None of these.
- The tangent line (at any approximated point) is not parallel to x-axis
- The sequence of approximated points not convergent to the exact solution

Question No 6:

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Summation of 2 where sum ranges from 0 to 10 equals 20.

- True
- False

Question No 7:

If the closed interval $f-10, x]$ is divided into 20' equally spaced subintervals each of which having the width equals to 1' unit then the value of* is _____

- 0
- 10
- 20
- 30

Question No 8:

If $f(x)=x^4$, then which of the following is Not true about it.

- Its anti-derivative is $x^5/5$. Not sure
- Its anti-derivative is $5/5+10$.
- Its anti-derivative is x^5+5 . THIS ONE IS ALSO CORRECT
- Its anti -derivatives $x^5/5+2$.

Question No 9:

Let $y f()$ be a discontinuous function on a finite closed interval, then which of the following is true about it

- It has only absolute minimum value.
- None It of these.
- It may or may not have absolute extreme values.
- It must have absolute extreme values.

Question No 10

Integral of 52 is NOTE: X^n means '* to the power's

- $25x$
- $(1/3)5^3$
- None of these
- 10

Question No 11:

If $f(x)=x^3$ is defined on the interval $[1, 3]$, then which of the following is true about it.

- Its relative minimum value exists at the critical point.
- Its relative minimum value does not exist at the critical point CM
- None of these.
- KHANCSUIY HAN Its absolute minimum value exists at the critical point

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Question 12:

In approximation to an area R_n (where n is subscript) when limit is taken as n goes to infinity, approximation becomes actual area

- True
- False

Question 13:

If $f(x) = \sec^2(x) + x^3$, then which of the following is NOT true about it.

- Its anti-derivative is $\tan(x) + \frac{x^4}{4} + 15$
- None of these.
- Its anti-derivative is $\tan(x) + \frac{x^4}{4} + 12$
- Its anti-derivative is $\tan(x) + \frac{x^4}{4} + 10$.

Question 14:

Integration of 5 with respect to x is _____

- 5
- x
- $5x$
- $5x^2$

Question No 15:

Sum of n -terms of a series whose n th term is ' $\frac{1}{n+1}$ '. then what is the sum of the first two terms is _____

- $\frac{5}{6}$
- $\frac{6}{5}$
- $\frac{6}{4}$
- 6

Question No 16:

Newton's method uses the _____ to approximate the root.

- None of these
- Tangent line
- Secant line
- Normal line

Question No 17:

The polynomial function $f(x) = 6x^2 - 30x + 36$ has the critical point over the real line is _____

- 5
- 2
- $\frac{2}{5}$
- $\frac{5}{2}$

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Question No 18:

If $f(x) = x^5 + 6$, then which of the following is Not true about it.

- Its anti - derivative is $x^6/6 + 6x + 6$
- Its anti -derivative is $x^6/6 + 6x$.
- Its anti-derivative is $x^6/6 + 6x + 10$.
- Its anti -derivative is $x^6/6 + 12x$

Question No 19:

If $x = 1 + 2 + 3 + 4 + \dots + 20$, then $x =$ _____

- None of these.
- 200.
- 500.
- 210.

Question No 20:

In sigma notation $12 + 14 + 16 + 18 + 20$ can be written as _____

- summation of (k) where $(k \text{ varies from } 6 \text{ to } 10)$
- summation of $(2k)$ where $(k \text{ varies from } 1 \text{ to } 5)$
- summation of (k^2) where $(k \text{ varies from } 6 \text{ to } 10)$
- summation of $(2k)$ where $(k \text{ varies from } 6 \text{ to } 10)$

Question No 21:

$x=1$ is a critical value of the function.

$$f(x) = (x-1)^3$$

NOTE: x^n means 'X to the power 'n'

- False
- True

Question No 22

If $f(x) = 2x + 7$ is defined on the interval $(2, 4)$. then which of the following is true about it.

- It has only absolute minimum value.
- None of these.
- It has both absolute maximum and minimum values.
- It has only absolute maximum value.

Question No 23:

The indefinite integral of $5\sin x$ is _____

- $5\cos x + c$

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- $-5\cos x + c$
- $\cos x/5 + c$
- $-\cos x/5 + c$

Question N0 24:

summation of (ei) (i varies from 1 to n), summation of (oj) (j varies from 1 to n), summation of (ek) (k varies from 1 to n). All these three represents same summation.

- True
- False

Question No 25:

Which of the following will be left end points if the interval $(-2, 2]$ is divided into 4 equal subintervals

- $-2, -1, 0, 1, 2$
- $-2, -1, 0, 1$
- None of these
- $-1, 0, 1, 2$

Question No 25:

If $x = (1^2)(2^2) + (3^2) + (4^2) + \dots + (30^2)$, then $x =$ _____

- 900.
- None of these.
- 9455.
- 465.

Question No 26:

If $f(x) = \tan(x)$ then mean value theorem can be applied to it on the interval $(0, 2\pi)$

- True
- False

Question No 27:

If ' n ' goes from 1 to 4 and the summation of ' na ' = Maxima of (ex) in the interval $[-e, 0]$. then the value of ' a ' is _____

- $-1/10$
- $1/10$
- 10
- -10

Question No 28:

Subdivide the interval $[a, b]$ into 4 equal subintervals then the width of each subinterval is _____

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- $(b-a)/2$
- $(b-2a)/4$
- $(b-a)/4$
- $(2b-a)/4$

Question No 29:

Subdivide the interval $3, 5]$ into n equal parts, and then the width of each subinterval is _____

- $1/n$
- N
- $2/n$
- $-2/n$

Question No 30:

If $f(x) = x^5 + x$, then which of the following is true about it _____

- Its anti-derivative is $x^6/6 + x^2/2 + 6$.
- Its anti-derivative is $x^5/5 + 1$.
- Its anti-derivative is $5x^4 + 1$
- None of these.

Question No 31:

Newton's Method fails to find the approximate solution of an equation if _____

- the tangent line (at any approximated point) is parallel to x-axis.
- None of these
- the slope of the tangent line (at any approximated point) is non-zero
- the tangent line (at any approximated point) is not parallel to x-axis.

Question No 32:

If 'n' goes from 1 to 3 and the summation of 'na' = 6, then the value of 'a' is _____

- Undetermined
- 1
- 6
- -6

Question No 33:

$1+2+3+ \dots + 1000$ equals _____

- None of these
- 3000
- 1000
- 500500

Question No 34:

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If $f(x) = |x| - 2$ is defined on the interval $[-2, 2]$. then which of the following is true about it.

- None of these.
- There is a point in the interval $(-2, 2)$ where $f(x)$ has a horizontal tangent
- There is no such point in the interval $(-2, 2)$ where $f(x)$ has a horizontal tangent.
- It is discontinuous on the interval $[-2, 2]$

Question No 35:

Which of the following is the absolute minima of the function $f(x)=x$ in the interval $[-1, 1]$?

- -1
- 1
- 0
- 0.5

Question No 36:

If $f(x) = \cos(x) + \sin(x) + x$, then which of the following is NOT true about it.

- Its anti - derivative is $\sin(x) - \cos(x) + x^{2/2} + 4$.
- None of these.
- Its anti - derivative is $\sin(x) - \cos(x) + x^{2/2} + 4$.
- Its anti - derivative is $\sin(x) - \cos(x) + x^{2/2} + 5$.

Question No 37:

Maximum of the function $f(x)=2x+7$ occurs at

- None of these
- $x=-7/2$
- $x=-2/7$
- $x=0$

Question No 38:

What are critical points of the function $f(x) = x^2 - 1$?

NOTE: x^n means 'x' to the power 'n'

- No critical point
- $x=0$
- None of these
- $x=1$

Question N0 39:

EVERY continuous function on an interval has an anti-derivative

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On the Interval

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