Mth621 Quiz#3 Topic (152 to 175) page (112-134)

Due date 16-18 August 2021

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- Mth621-QUIZ#3-FALL-2019-BY-SHAZIA 16feb2019 (pg10)
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- Mid.Mth621.sol.files preparation Group-5 2018,2017, quiz4,2,3 mix (pg52)
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MTH621:Quiz 3 - Lecture 23 to 27

Question # 9 of 10 (Start time: 09:48:57 PM, 18 January 2018)

For the function $f(x) = x \sin \frac{1}{x}, \quad x \neq 0$, which statement is true

Select the correct option

- $\lim_{x \to 1/\pi} f(x) = 0.$
- The function is not defined at $x = 0.$
- $\lim_{x \to 0} f(x) = 1.$
- $\lim_{x \to 0} f(x) = 0.$

MTH621:Quiz 3 - Lecture 23 to 27

Question # 7 of 10 (Start time: 07:52:40 PM, 16 January 2018)

For the function defined as

$$f(x) = cx,$$

for every $\epsilon > 0$ the formal definition ensures

Select the correct option

- $|f(x) - cx_0| <, \quad |x - x_0| < \delta, \text{ where } 0 < \delta < \epsilon.$
- $|f(x) - cx_0| <, \quad |x - x_0| < \delta, \text{where } 0 < \delta < \epsilon/|c|.$ ✓
- $|f(x) - cx_0| <, \quad |x - x_0| < \delta, \text{where } -\epsilon < \delta < \epsilon.$
- $|f(x) - cx_0| <, \quad |x - x_0| < \delta, \text{where } 0 < \delta < \epsilon.$

Pg78

MTH621:Quiz 3 - Lecture 23 to 27

Question # 9 of 10 (Start time: 07:54:42 PM, 16 January 2018)

The limit

$$\lim_{x \to 1} \sqrt{x} - 1.$$

Select the correct option

- 1.
- 0.
- does not exist.
- -1.

B

MTH621:Quiz 3 - Lecture 23 to 27

Question # 6 of 10 (Start time: 07:51:32 PM, 16 January 2018)

The $\lim_{x \to 0} \frac{4 - 4\cos x - 2\sin^2 x}{x^4}$ is

Select the correct option

- $\frac{1}{4}$
- $-\frac{1}{2}$
- $\frac{1}{2}$ Pg116 ✓
- 2

MTH621:Quiz 3 - Lecture 23 to 27

Question # 6 of 10 (Start time: 09:47:44 PM, 18 January 2018)

If $\lim_{x \to 0} f(x) = 10$ and $\lim_{x \to 0} g(x) = -2$ then $\lim_{x \to 0} \frac{f(x)}{g(x)}$ is

Select the correct option

○	-10
○	5
○	0
●	-5

D

MTH621:Quiz 3 - Lecture 23 to 27

Question # 8 of 10 (Start time: 09:48:22 PM, 18 January 2018)

For the piecewise defined function $f(x) = \left\{ {

$$\begin{array}{ll} x^3, & x \leq 0, \\ x^2 \sin \frac{1}{x}, & x > 0, \end{array}$$

Select the correct option

- (●) 0
- ( ) 2
- ( ) 1
- ( ) -1

MTH621:Quiz No 3

Question # 3 of 10 (Start time: 03:28:42 PM, 16 February 2019)

If a function f is continuous on the closed interval then f attains its

Select the correct option

- extreme values in the closed interval.
- extreme values at one point in the closed interval.
- may or may not attain extreme values in the closed interval.
- derivative in the closed interval.

Pg110

MTH621:Quiz No 3

Question # 10 of 10 (Start time: 03:33:30 PM, 16 February 2019)

The function $f(x) = \begin{cases} x, & 0 \leq x < 1, \\ 2, & 1 \leq x \leq 2, \end{cases}$ is

Select the correct option

- is nondecreasing on $I = [0, 2]$.
- is nonincreasing on $I = [0, 2]$.
- is having negative values on $I = [0, 2]$.
- is undefined on $I = [0, 2]$.

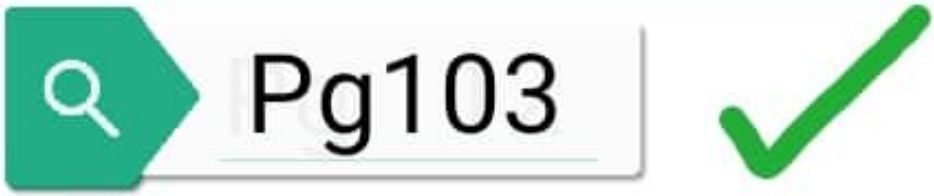
MTH621:Quiz No 3

Question # 4 of 10 (Start time: 03:29:43 PM, 16 February 2019)

The derivative of the function x^n is

Select the correct option

- x^{n-1}.
- nx^{n-1}.
- $\frac{n}{x^{n-1}}$.
- nx^n.



Question # 5 of 10 (Start time: 03:30:23 PM, 16 February 2019)

The Mean Value Theorem says, suppose that f is differentiable on $[a, b]$, $f'(a) \neq f'(b)$, and μ is between $f'(a)$ and $f'(b)$.

Select the correct option

- Then $f'(c) \neq \mu$ for some c in (a, b).
- Then $f'(c) = \mu$ for some c in (a, b).
- Then $f'(c) = 0$ for some c in (a, b).
- Then $f'(c)$ may be 0 or μ for some c in (a, b).

MTH621:Quiz No 3

Question # 2 of 10 (Start time: 03:28:07 PM, 16 February 2019)

If $f : I \to \mathbb{R}$ has a derivative at $c \in I$, then f is

Select the correct option

●	continuous at c.
○	discontinuous at c.
○	undefined at c.
○	having one sided limit.

MTH621:Quiz No 3

Question # 10 of 10 (Start time: 03:33:30 PM, 16 February 2019)

The function $f(x) = \begin{cases} x, & 0 \leq x < 1, \\ 2, & 1 \leq x \leq 2, \end{cases}$ is

Select the correct option

- is nondecreasing on $I = [0, 2]$.
- is nonincreasing on $I = [0, 2]$.
- is having negative values on $I = [0, 2]$.
- is undefined on $I = [0, 2]$.

MTH621:Quiz No 3

Question # 4 of 10 (Start time: 01:01:38 AM, 17 February 2019)

The function $h(x) = -x^3$ is

Select the correct option

- ○ is undefined on $(-\infty, \infty)$.
- ● decreasing on $(-\infty, \infty)$. Pg 97 ✓
- ○ increasing on $(-\infty, \infty)$.
- ○ positive on $(-\infty, \infty)$.

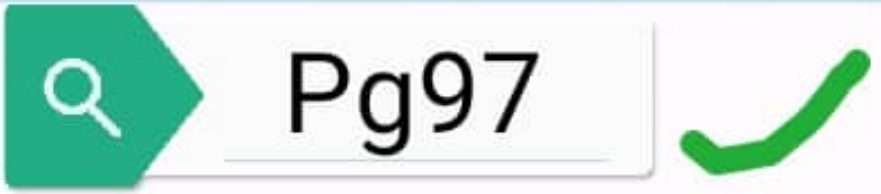
MTH621:Quiz No 3

Question # 1 of 10 (Start time: 12:59:51 AM, 17 February 2019)

The function $g(x) = x^2$ is

Select the correct option

- ○ decreasing on $[0, \infty)$.
- ● increasing on $[0, \infty)$.
- ○ having negative values on $[0, \infty)$.
- ○ undefined on $[0, \infty)$.



MTH621:Quiz-3

Question # 1 of 10 (Start time: 05:37:55 PM, 17 August 2021)

The series $\sum(-1)^n a_n$ *converges if* $0 \leq a_{n+1} \leq a_n$ *and* $\lim_{x\to\infty} a_n =$ ------.

Select the correct option

- -1
- 0
- *None of these*
- 1

MTH621:Quiz-3

Quiz Start Time: 10:57 PM, 17 August 2021

Question # 2 of 10 (Start time: 10:58:26 PM, 17 August 2021)

Total Marks: 1

Let f be bounded on $[a,b]$, and let P be a partition on $[a,b]$. Then
The upper sum $s(P)$ of f over P is the $--------$ of the set of all Riemann sums of f over P.

Select the correct option

Reload Math Equations

- infimum
- supremum

sec(s)

MTH621:Quiz-3

Quiz Start Time: 10:57 PM, 17 August 2021

Question # 8 of 10 (Start time: 11:03:35 PM, 17 August 2021)

Total Marks: 1

Generalized Mean Value Theorem says, If f and g are continuous on the closed interval $[a, b]$ and differentiable on the open interval (a, b), then

Select the correct option

Reload Math Equations

- $g'(x) = 0$ for all x in (a, b).
- $[g(b) - g(a)] = [f(b) - f(a)]g'(c)$ for some c in (a, b).
- $[g(b) - g(a)]f'(c) = [f(b) - f(a)]g'(c)$ for some c in (a, b).
- $g'(x) = f'(x)$ for all x in (a, b).

Question # 1 of 10 (Start time: 03:52:38 AM, 18 August 2021)

$If\ \ f\ is\ continuous\ at\ x_o\ ,\ then\ f\ is\ diffrentiable\ at\ x_o.$

Select the correct option

- ● $false$ Pg105 ✔
- ○ $true$

MTH621:Quiz-3

Question # 10 of 10 (Start time: 01:19:07 AM, 18 August 2021)

The radius of convergence of $\sum a_n (x - x_n)^n$ *is given by* $- - - - - = \lim_{n\to\infty} |\frac{a_{n+1}}{a_n}|$ *if the limit exists in the extended real system.*

Select the correct option

○	R
○	*none of these*
●	$\frac{1}{R}$
○	n

Question # 3 of 10 (Start time: 08:00:34 PM, 18 August 2021)

$If\ \ f\ is\ diffrentiable\ at\ x_o\ ,\ then\ f\ is\ continuous\ at\ x_o.$

Select the correct option

- ● $true$ ✓

- ○ $false$

MTH621:Quiz-3

Question # 7 of 10 (Start time: 01:09:33 AM, 18 August 2021)

$The\ \ function\ g(x) = x^2\ is\ ------\ on\ [0, \infty).$

Select the correct option

- Pg 97 $inrea\sin g$
- $decrea\sin g$

MTH621:Quiz-3

Question # 3 of 10 (Start time: 01:20:54 AM, 18 August 2021)

$The\ \ function\ g(x) = x^2\ \ is\ inrea\sin g\ on\ \ ------$

Select the correct option

- $(-\infty, -1)$
- $none\ of\ these$
- $(-\infty\,, 0)$
- $[0, \infty)$

Pg97

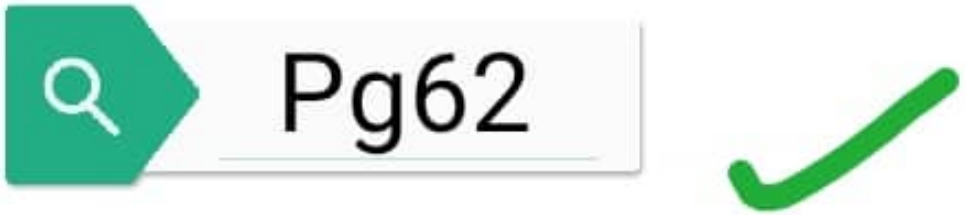
MTH621:Quiz-3

Question # 5 of 10 (Start time: 01:24:53 AM, 18 August 2021)

$The\ series\ \sum (-1)^n a_n \quad - - - - - - - \quad if\ 0 \leq a_{n+1} \leq a_n\ and\ \lim_{x \to \infty}\ a_n = 0$

Select the correct option

- (●) *converges*
- ( ) *diverges*



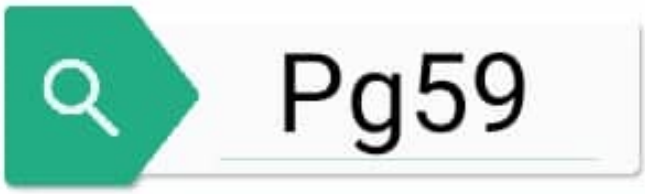
MTH621:Quiz-3

Question # 3 of 10 (Start time: 03:53:08 AM, 18 August 2021)

$The\ series\ \sum a_n b_n\ \ converges\ if\ a_{n+1} \leq a_n\ for\ n \geq k,\ \lim_{x\to\infty}\ a_n = 0,\ and$

$|b_k + b_{k+1} + \ldots + b_n| - - - - M,\ for\ some\ constant\ M.$

Select the correct option

○	$<$
○	$None\ of\ these$
●	$\leq$ 
○	$\geq$

Question # 6 of 10 (Start time: 03:53:57 AM, 18 August 2021)

Suppose that f has n derivative at x_o and n is the the smallest positive integer such that $f^n(x_o) \neq 0$. If n is even, x_o is ---------- if $f^{(n)}(x_o) >$

Select the correct option

- *None of these*
- *a local maximum of f.*
- *not a local extreme point of f.*
- *a local minimum of f.* ✓

MTH621:Quiz-3

Question # 8 of 10 (Start time: 03:54:19 AM, 18 August 2021)

Investigate the value of $\lim_{x\to\infty} x^{\frac{1}{x}} = -----.$

Select the correct option

- ○ *None of these*
- ● Pg119 ✓ 1
- ○ 0
- ○ -1

Question # 9 of 10 (Start time: 03:54:48 AM, 18 August 2021)

Suppose that f has n derivative at x_o and n is the the smallest positive integer such that $f^n(x_o) \neq 0$. If n is odd, x_o is ----------.

Select the correct option

- *a local maximum of f.*
- *None of these*
- *not a local extreme point of f.* ✓
- *a local minimum of f.*

Pg123

MTH621:Quiz-3

Question # 10 of 10 (Start time: 03:55:01 AM, 18 August 2021)

$The\ radius\ of\ convergence\ of\ the\ given\ power\ series\ \sum n!x^n\ is\ -----$

Select the correct option

- (●) 0
- ( ) $none\ of\ these$
- ( ) ∞
- ( ) 1

MTH621:Quiz-3

Question # 2 of 10 (Start time: 08:00:21 PM, 18 August 2021)

$If \sum_{n=1}^{\infty} b_n \ is\ rearrangement\ of\ an\ absolutely\ convergernt\ series$

$\sum_{n=1}^{\infty} a_n,\ then \sum_{n=1}^{\infty} b_n\ also\ ------\ absolutely,\ and\ to\ the\ same\ sum.$

Select the correct option

○	*diverges*
●	*converges*

Pg64

MTH621:Quiz-3

Question # 4 of 10 (Start time: 08:00:49 PM, 18 August 2021)

$In\ the\ Riemann\ \text{integral}\ \int_a^b f(x)\,dx\ ,\ if\ it\ exist\ ,\ is\ ---$

Select the correct option

- $different$
- $unique$

Pg127

MTH621:Quiz-3

Question # 5 of 10 (Start time: 08:01:01 PM, 18 August 2021)

The radius of convergence of the given power series $\sum \frac{x^n}{n!}$ *is* $------$.

Select the correct option

○	0
●	∞
○	1
○	*None of these*

MTH621:Quiz-3

Quiz Start Time: 08:00 PM, 18 August 2021

Question # 6 of 10 (Start time: 08:01:15 PM, 18 August 2021)

Total Marks: 1

Suppose that f has n derivative at x_0 and n is the the smallest positive integer such that $f^n(x_0) \neq 0$. If n is even, x_0 is ---------- if $f^{(n)}(x_0) < 0$.

Select the correct option

Reload Math Equations

- *None of these*
- *a local maximum of f.*
- *not a local extreme point of f.*
- *a local minimum of f.*

Pg123

MTH621:Quiz-3

Question # 7 of 10 (Start time: 08:01:27 PM, 18 August 2021)

$\lim_{x \to 0+} x \log x$, has the following indeterminate form

Select the correct option

- ○ $\frac{0}{0}$.
- ○ $\infty \times \infty$.
- ● $(0)(\infty)$.
- ○ 0^{∞}.

Pg117

MTH621:Quiz-3

Quiz Start Time: 08:00 PM, 18 A

Question # 8 of 10 (Start time: 08:01:39 PM, 18 August 2021)

T

$If\ f\ is\ unbounded\ on\ [a,b]\ ,\ then\ f\ is\ ---------\ on\ [a,b].$

Select the correct option

Reload Ma

- $not\ integrable$ ✓
- $integrable$

MTH621:Quiz-3

Question # 9 of 10 (Start time: 08:01:52 PM, 18 August 2021)

Investigate the value of $\lim_{x \to 0+} x \log x = - - - - -.$

Select the correct option

- -1
- *None of these*
- 0
- 1

Question # 10 of 10 (Start time: 08:02:04 PM, 18 August 2021)

$If\ f\ is\ ------\ on\ [a,b]\ ,\ then\ f\ is\ not\ \text{integrable}\ on\ [a,b].$

Select the correct option

- ○ *bounded*
- ● *unbounded*

Pg129

MTH621:Quiz-3

Quiz Start Time: 09:58 AM, 18 August 2021

Question # 1 of 10 (Start time: 09:58:31 AM, 18 August 2021)

Total Marks: 1

Let f be bounded on $[a,b]$, and let P be a partition on $[a,b]$. Then
The lower sum $s(P)$ of f over P is the $--------$ of the set of all Riemann sums of f over P.

Select the correct option

Reload Math Equations

- sup *remum*
- inf *imum*