



MTHE621: Quiz 3



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Question # 1 of 10

SOLVED BY: WAQAR HUSSAIN

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

Select the correct option



not integrable

(Module 171 Lecture 39, Pg.129)



integrable



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Question # 2 of 10

SOLVED BY: WAQAR HUSSAIN

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

☐

infimum

☒

sup remum

(Module 173 Lecture 40, Pg.130)

☐☐

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Question # 4 of 10

SOLVED BY: WAQAR HUSSAIN

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



$$[g(b) - g(a)] = [f(b) - f(a)]g'(c) \text{ for some } c \text{ in } (a, b)$$



$$g'(x) = 0 \text{ for all } x \text{ in } (a, b)$$



$$g'(x) = f'(x) \text{ for all } x \text{ in } (a, b)$$



$$[g(b) - g(a)]f'(c) = [f(b) - f(a)]g'(c) \text{ for some } c \text{ in } (a, b)$$



(Module 152 Lecture 35, Pg.112)

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Question # 7 of 10

SOLVED BY: WAQAR HUSSAIN

Suppose that f has n derivatives at x_0 and n is 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

☐	not a local extreme point of f	
☒	a local maximum of f (Module 166 Lecture 38, Pg.123)	
☐	a local minimum of f	
☐	None of these	

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Question # 3 of 10

SOLVED BY: WAQAR HUSSAIN

In the Riemann integral $\int_a^b f(x)dx$, if it exists, is _____

Select the correct option



unique

(Module 169 Lecture 39, Pg.127)



different



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Question # 5 of 10

SOLVED BY: WAQAR HUSSAIN

If f is _____ on $[a, b]$, then f is not integrable on $[a, b]$.

Select the correct option

☐

bounded

☒

unbounded

(Module 171 Lecture 39, Pg.129)

☐☐

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Question # 6 of 10

SOLVED BY: WAQAR HUSSAIN

The limit $\lim_{x \rightarrow 0^+} x \log x$, has the following indeterminate form

Select the correct option

☐	$\infty \times \infty$	
☐	$\frac{0}{0}$	
☒	$(0)(\infty)$	 (Module 156 Lecture 36, Pg.117)
☐	$\frac{0}{\infty}$	

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Question # 9 of 10

SOLVED BY: WAQAR HUSSAIN

Suppose that f has n derivatives at x_0 and n is 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

☒	a local minimum of f	(Module 166 Lecture 38, Pg.123)	
☐	None of these		
☐	not a local extreme point of f		
☐	a local maximum of f		

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Question # 10 of 10

SOLVED BY: WAQAR HUSSAIN

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

Select the correct option



$$\frac{1}{R}$$

(Module 98 Lecture 22, Pg.70)



$$R$$



$$\pi$$



none of these



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Question # 8 of 10

SOLVED BY: WAQAR HUSSAIN

Suppose that f has n derivatives at x_0 and n is the smallest positive integer such that $f^{(n)}(x_0) \neq 0$. If n is odd, x_0 is _____.

Select the correct option

- | | | |
|---|---|---|
| ☐ | a local minimum of f |  |
| ☐ | None of these |  |
|  | not a local extreme point of f
(Module 166 lecture 38, Pg.123) |  |
| ☐ | a local maximum of f |  |

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