



BC180402531: MARYAM SIMAB

Time Left 78
sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 5 of 10 (start time: 07:06:48 AM, 02 March 2022)

Total Marks: 1

Which of the following is a condition of an inner product space?

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Select the correct option

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Reload Math Equations

- $\langle \alpha x, y \rangle = \langle x, \alpha y \rangle$
- $\langle x, y \rangle = \overline{\langle y, x \rangle}$
- $\langle \alpha x + \beta y, z \rangle = \langle x, z \rangle + \alpha \langle y, z \rangle$
- $\langle x, x \rangle \geq 0$

Click to Save Answer & Move to Next Question

R
Mod 83



MC200402300: ASIF ALI

Time Left 38
sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 11:48 AM, 01 March 2022

Question # 3 of 10 (start time: 11:50:29 AM, 01 March 2022)

Total Marks: 1

Since a bounded linear operator T from the normed space X to normed space Y is defined and given as:

$\forall x \in D(T) \exists k > 0$, such that $\|Tx\| \leq k \|x\|$, then the maximum value of k is_____

Select the correct option

 Reload Math Equations

- $\sup_{x \in D(T)} \frac{\|Tx\|}{\|x\|}$
- $\inf_{x \in D(T)} \frac{\|Tx\|}{\|x\|}$
- not defined
- any arbitrary non negative real number

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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 11:48 AM, 01 March 2022

Question # 5 of 10 (start time: 11:54:57 AM, 01 March 2022)

Total Marks: 1

Which of the following is a condition of an inner product space?

Select the correct option

Reload Math Equations

- $\langle x, x \rangle \geq 0$
- $\langle \alpha x + y, z \rangle = \langle x, z \rangle + \alpha \langle y, z \rangle$
- $\langle \alpha x, y \rangle = \langle x, \alpha y \rangle$
- $\langle x, y \rangle = \overline{\langle x, y \rangle}$

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MC200402300: ASIF ALI

Time Left 13
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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 11:48 AM, 01 March 2022

Question # 4 of 10 (start time: 11:51:30 AM, 01 March 2022)

Total Marks: 1

On a normed space X of all n degree polynomials defined on $[-1, 1]$, if D is a differential linear operator defined and given as;

$$D(x(t)) = \left\{ \frac{d}{dt}x(t) : x(t) \in X, -1 \leq t \leq 1 \right\}, \text{ then } \forall x \in X \exists k > 0 \text{ such that } \|Dx\| \leq k \|x\| \implies$$

Select the correct option

Reload Math Equations

- D is a linear bounded
- D is non-linear unbounded
- D is linear unbounded
- D is a non-linear bounded



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Saving...





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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 2 of 10 (start time: 07:03:17 AM, 02 March 2022)

Total Marks: 1

Null space is also a

Select the correct option



Vector space.



Linear functional.



Canonical mapping.



Metric space.

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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 7 of 10 (start time: 07:08:37 AM, 02 March 2022)

Total Marks: 1

Dot product is a

Select the correct option

- Function.
- Mapping.
- Functional.
- operator.

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13
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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 6 of 10 (start time: 07:07:10 AM, 02 March 2022)

Total Marks: 1

For n dimensional vector space and its dual space we have

Select the correct option

Reload Math Equations

- | | |
|----------------------------------|-----------------------------|
| <input type="radio"/> | $D(X) = X^* = n$ |
| <input type="radio"/> | $\dim(X) \subset \dim(X^*)$ |
| <input type="radio"/> | $R(X) = X^* = n$ |
| <input checked="" type="radio"/> | $\dim(X) = \dim(X^*) = n$ |

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sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 1 of 10 (start time: 07:01:58 AM, 02 March 2022)

Total Marks: 1

The mapping $T: V \rightarrow V$ defined by $T(v) = \alpha v$, where $v \in V$ is linear if

Select the correct option

[Reload Math Equations](#)

<input checked="" type="radio"/>	$\alpha = 0$
<input type="radio"/>	$\alpha \neq 0$

R

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Time Left 63 sec(s)

MTH641 - Functional Analysis (Quiz No.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 9 of 10 (start time: 07:10:21 AM, 02 March 2022)

Total Marks: 1

Every complete inner product space is -----.

Select the correct option

Reload Math Equations

- Complex space
- Hilbert space
- Banach space
- Euclidean space



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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 11:48 AM, 01 March 2022

Question # 6 of 10 (start time: 03:35:29 PM, 01 March 2022)

Total Marks: 1

On a normed space X of all polynomials of form $x(t) = t^{n+1}$, $n \in \mathbb{N}$ defined on $[-1, 1]$, if D is a differential linear operator defined and given as;

$D(x(t)) = \left\{ \frac{d}{dt} x(t) : x(t) \in P[-1, 1], -1 \leq t \leq 1 \right\}$, then $\|D\| =$

Select the correct option

Reload Math Equations

- | | |
|----------------------------------|---------|
| <input type="radio"/> | $n + 1$ |
| <input type="radio"/> | 0 |
| <input type="radio"/> | 1 |
| <input checked="" type="radio"/> | n |

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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 8 of 10 (start time: 07:09:14 AM, 02 March 2022)

Total Marks: 1

Which of the following an example of Linear Functional?

Select the correct option

Reload Math Equations

the integral operator $I : C[0, 1] \rightarrow \mathbb{R}$, on the space of all continuous functions on $[0, 1]$ defined by

$$I(f) = \int_0^1 f(t) dt$$



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the derivative operator on space of all real polynomials



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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 10 of 10 (start time: 07:10:56 AM, 02 March 2022)


Total Marks: 1

If a normed space X is finite dimensional, then every linear operator on X is

Select the correct option

Reload Math Equations

- | | |
|----------------------------------|-----------------|
| <input type="radio"/> | Continuous. |
| <input type="radio"/> | Differentiable. |
| <input checked="" type="radio"/> | Bounded. |
| <input type="radio"/> | Integrable. |

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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 11:48 AM, 01 March 2022

Question # 6 of 10 (start time: 03:36:29 PM, 01 March 2022)

Total Marks: 1

On a normed space X of all polynomials of form $x(t) = t^{n+1}$, $n \in \mathbb{N}$ defined on $[-1, 1]$, if D is a differential linear operator defined and given as;

$D(x(t)) = \left\{ \frac{d}{dt} x(t) : x(t) \in P[-1, 1], -1 \leq t \leq 1 \right\}$, then $\|D\| =$ _____

Select the correct option

Reload Math Equations

- $n + 1$
- 0
- 1
- n

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Time Left 15
sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 11:48 AM, 01 March 2022

Question # 7 of 10 (start time: 06:53:03 AM, 02 March 2022)

Total Marks: 1

If a sequence $x_n \rightarrow x$ in a normed space X , then for a bounded linear operator T on X , then

Select the correct option

Reload Math Equations

- | | |
|----------------------------------|-----------------------|
| <input type="radio"/> | $Tx_n \rightarrow Tx$ |
| <input checked="" type="radio"/> | $Tx_n \rightarrow Tx$ |

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sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

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Quiz Start Time: 11:48 AM, 01 March 2022

Question # 9 of 10 (start time: 06:55:46 AM, 02 March 2022)

Total Marks: 1

A hilbert space is a /an.....

Select the correct option

- Incomplete norm space
- Incomplete inner product space
- complete norm space
- complete inner product space

[Click to Save Answer & Move to Next Question](#)

R

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Time Left 63 sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 9 of 10 (start time: 07:10:21 AM, 02 March 2022)

Total Marks: 1

Every complete inner product space is -----.

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Select the correct option

Reload Math Equations

- Complex space
- Hilbert space
- Banach space
- Euclidean space

R

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sec(s)

MTH641 - Functional Analysis (Quiz No.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 10 of 10 (start time: 07:10:56 AM, 02 March 2022)

Total Marks: 1

If a normed space X is finite dimensional, then every linear operator on X is

Select the correct option

[Reload Math Equations](#)

- | | |
|----------------------------------|-----------------|
| <input type="radio"/> | Continuous. |
| <input type="radio"/> | Differentiable. |
| <input checked="" type="radio"/> | Bounded. |
| <input type="radio"/> | Integrable. |
- R ✓*

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Time Left 57 sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 11:48 AM, 01 March 2022

Question # 10 of 10 (start time: 06:56:24 AM, 02 March 2022)

Total Marks: 1

In an Inner Product space say X , if the sequences $\{x_n\}$ and $\{y_n\}$ are Cauchy, then (x_n, y_n) is -----

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Select the correct option

Reload Math Equations

- necessarily a Cauchy sequence in X
- not necessarily a Cauchy sequence in F
- not necessarily a Cauchy sequence in X
- necessarily a Cauchy sequence in F

Mod 90 R

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Time Left 65 sec(s)

MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 7 of 10 (start time: 07:08:37 AM, 02 March 2022)

Total Marks: 1

Dot product is a

Select the correct option

- Function.
- Mapping.
- Functional.
- operator.



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MTH641 - Functional Analysis (Quiz NO.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 4 of 10 (start time: 07:05:54 AM, 02 March 2022)

Total Marks: 1

For an inner product space $\langle x, y, z \rangle = \dots$

Select the correct option

- $\langle x, z \rangle = \langle y, z \rangle$
- $\langle x, z \rangle = \langle y, z \rangle$ **R**
- $\langle x, z \rangle = \langle y, z \rangle$
- None of these

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Quiz Start Time: 07:01 AM, 02 March 2022

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Question # 6 of 10 (start time: 07:07:10 AM, 02 March 2022)

Total Marks: 1

For n dimensional vector space and its dual space we have

Select the correct option

Reload Math Equations

- | | |
|----------------------------------|-----------------------------|
| <input type="radio"/> | $D(X) = X^* = n$ |
| <input type="radio"/> | $\dim(X) \subset \dim(X^*)$ |
| <input type="radio"/> | $R(X) = X^* = n$ |
| <input checked="" type="radio"/> | $\dim(X) = \dim(X^*) = n$ |

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Time Left 37
sec(s)

MTH641 - Functional Analysis (Quiz No.03)

Quiz Start Time: 07:01 AM, 02 March 2022

Question # 8 of 10 (start time: 07:09:14 AM, 02 March 2022)

Total Marks: 1

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Select the correct option

Reload with questions

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 $I(f) = \int_0^1 f(t) dt$

the derivative operator on space of all real polynomials.

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