Quiz

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BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 1 of 10 ( Start time: 10:39:59 PM, 23 November 2023 )

The unit normal to the surface $x = 0$ is

Select the correct option

- does not exist
- $\pm\hat{j}$
- $\pm\hat{i}$
- $\pm\hat{k}$

To get future Google Chrome updates, you'll need Windows 10 or later. This computer is using

BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 2 of 10 ( Start time: 10:40:41 PM, 23 November 2023 )

If $\vec{\nabla}.\vec{v} = 0$ then the vector field $\vec{v}$ is called

Select the correct option

- non solenoidal
- solenoidal

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BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 2 of 10 ( Start time: 10:40:41 PM, 23 November 2023

If $\vec{\nabla}.\vec{v} = 0$, then the vector field $\vec{v}$ is called

Select the correct option

- non solenoidal
- solenoidal

vulms.vu.edu.pk/Quiz/QuizQuestion.aspx?ver=1c6dc19c-1

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MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 3 of 10 ( Start time: 10:41:26 PM, 23 November 2023 )

If $\vec{v} = x\hat{i}$, then the vector field $\vec{v}$ is

Select the correct option

- non solenoidal
- solenoidal

BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 4 of 10 ( Start time: 10:42:25 PM, 23 November 2023 )

The unit normal to the surface $xy - 1 = 0$ is

Select the correct option

- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{j})$
- does not exist
- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{k} + x\hat{j})$
- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{k})$

To get future Google Chrome updates, you'll need Windows 10 or later. This computer is using

BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 5 of 10 ( Start time: 10:43:15 PM, 23 November 2023 )

$\oint_C \vec{A}.d\vec{r}$ for $\vec{A} = 2\hat{i}$ becomes

Select the correct option

- $2\oint_C dx$
- $2\oint_C \hat{i}dx$

To get future Google Chrome updates, you'll need Windows 10 or later. This computer is

BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 6 of 10 ( Start time: 10:43:52 PM, 23 November 2023 )

A simple closed curve does not intersects itself anywhere.

Select the correct option

- false
- true

BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 7 of 10 ( Start time: 10:44:32 PM, 23 November 2023 )

Unit circle is not a simple closed curve.

Select the correct option

- false
- true

**Question # 8 of 10 ( Start time: 10:45:38 PM, 23 November 2023 )**

The Stoke's theorem uses which of the following operation?

**Select the correct option**

- Divergence
- Laplacian
- Curl
- Gradient

Quiz

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To get future Google Chrome updates, you'll need Windows 10 or later. This computer is using Windows 8.1.

BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 9 of 10 ( Start time: 10:46:33 PM, 23 November 2023 )

If \[\frac{{\partial M}}{{\partial y}} = \frac{{\partial N}}{{\partial x}}\] then the integral is _____

Select the correct option

Independent

Dependent

BC230414205: SHEHR BANO

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

**Question # 10 of 10 ( Start time: 10:47:31 PM, 23 November 2023 )**

The unit normal to the surface $z = 0$ is

**Select the correct option**

| | |
|---|---|
| ○ | does not exist |
| ○ | $\pm\hat{j}$ |
| ○ | $\pm\hat{k}$ |
| ○ | $\pm\hat{i}$ |

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vulms.vu.edu.pk/Quiz/QuizQuestion.aspx?ver=a21bbd58-f091-473c-94

**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

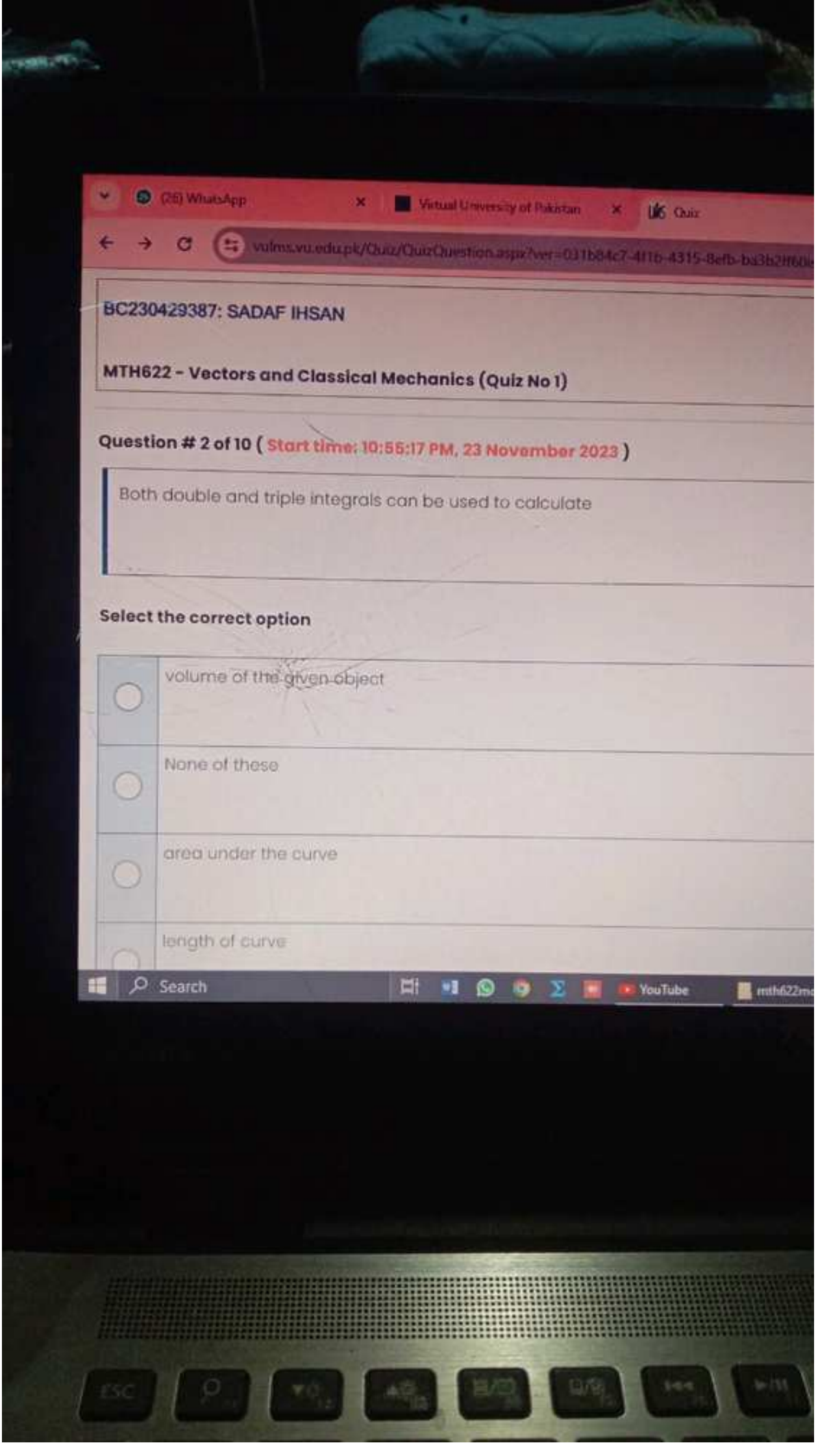
**Question # 1 of 10 ( Start time: 10:53:51 PM, 23 November 2023 )**

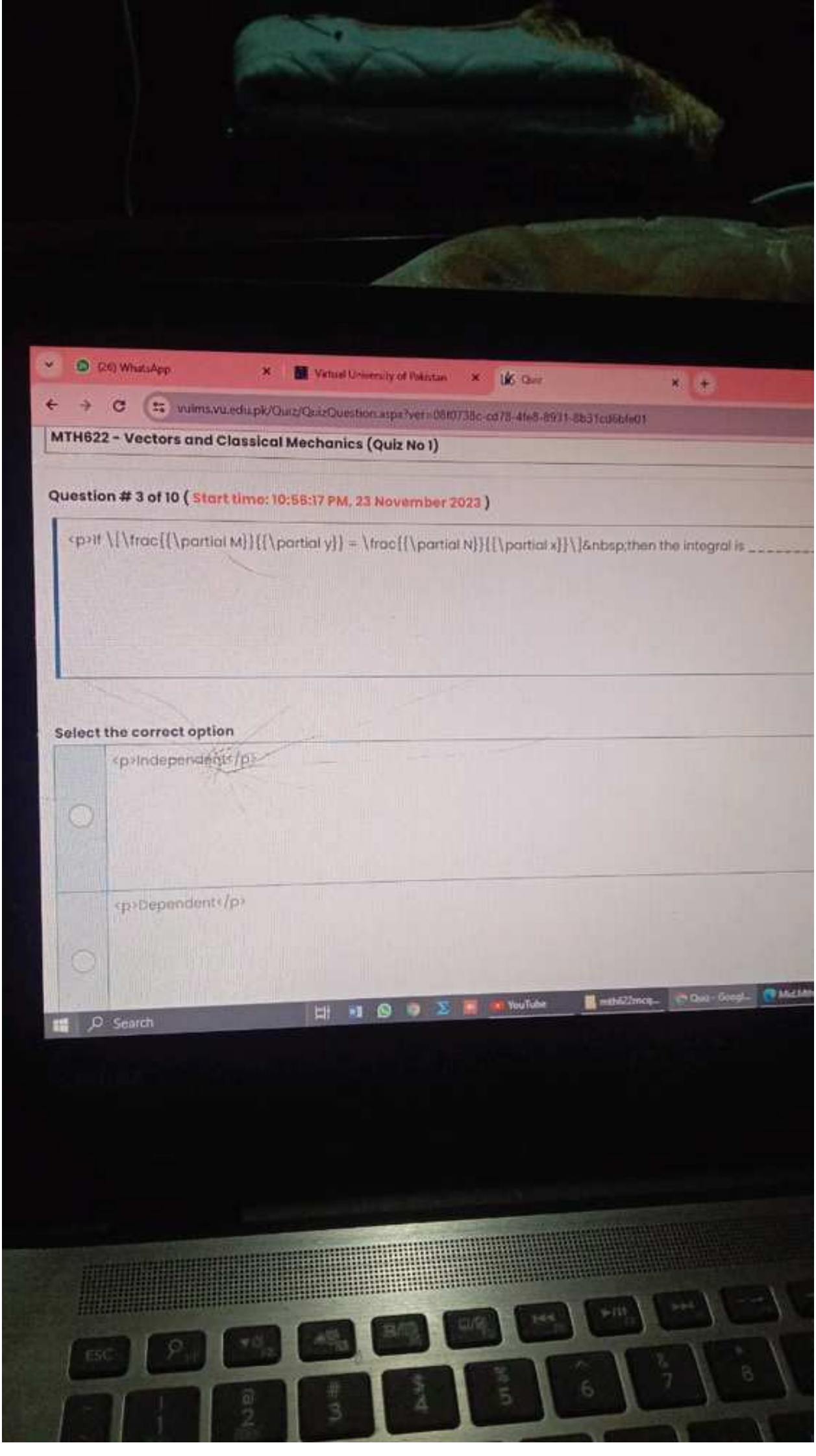
The unit vector $\hat{j}$ is normal to the surface

**Select the correct option**

- $y = 0$
- none of these
- $z = 0$
- $x = 0$

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BC230429387: SADAF IHSAN
MTH622 - Vectors and Classical Mechanics (Quiz No 1)
Question # 2 of 10 ( Start time: 10:55:17 PM, 23 November 2023 )
Both double and triple integrals can be used to calculate
Select the correct option
volume of the given object
None of these
area under the curve
length of curve
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Quiz
vulms.vu.edu.pk/Quiz/QuizQuestion.aspx?ver=05f0738c-cd78-4fe8-8931-8b31cd6bfe01
MTH622 - Vectors and Classical Mechanics (Quiz No 1)
Question # 3 of 10 ( Start time: 10:56:17 PM, 23 November 2023 )
If \[\frac{{\partial M}}{{\partial y}} = \frac{{\partial N}}{{\partial x}}\] then the integral is _____
Select the correct option
Independent
Dependent
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**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 4 of 10 ( Start time: 10:57:11 PM, 23 November 2023 )**

The second vector form of Green's theorem is also called

**Select the correct option**

- tangential form of Green's theorem
- Normal form of Green's theorem

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**BC230429387: SADAF IHSAN**

**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 5 of 10 ( Start time: 10:58:04 PM, 23 November 2023 )**

$\oint_C \vec{A}.d\vec{r}$ for $\vec{A} = 2\hat{i}$ becomes

**Select the correct option**

- $2\oint_C dx$
- $2\oint_C \hat{i}\,dx$

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**BC230429387: SADAF IHSAN**

**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 6 of 10 ( Start time: 10:58:41 PM, 23 November 2023 )**

For $\varphi = x$ the integration $\int_0^1 \int_0^1 \varphi \hat{k} dx dy$ gives

**Select the correct option**

$\frac{1}{4}\hat{k}$

$\frac{1}{2}\hat{k}$

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**BC230429387: SADAF IHSAN**

**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 7 of 10 ( Start time: 10:59:13 PM, 23 November 2023 )**

Evaluate $\int \varphi d\vec{r}$ for $\varphi = 1$

**Select the correct option**

- $xyz(\hat{i} + \hat{j} + \hat{k})$
- $x\hat{i} + y\hat{j} + z\hat{k}$

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## MTH622 - Vectors and Classical Mechanics (Quiz No 1)

**Question # 8 of 10 ( Start time: 10:59:57 PM, 23 November 2023 )**

$\hat{i} \times \vec{\nabla}\varphi$ for $\varphi = x$ becomes

**Select the correct option**

- $\vec{0}$
- $\hat{j}$

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**BC230429387: SADAF IHSAN**

**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 9 of 10 ( Start time: 11:01:22 PM, 23 November 2023 )**

If $\vec{v} = \hat{i}$, then the vector field $\vec{v}$ is

**Select the correct option**

- solenoidal
- non solenoidal

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**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 10 of 10 ( Start time: 11:02:55 PM, 23 November 2023 )**

If $\hat{n}$ is the unit normal to the surface $S$ and $\psi$ is a scalar point function having continuous partial der

**Select the correct option**

- $\vec{\nabla}\psi . d\vec{S} = \frac{\partial \psi}{\partial n} dS$
- $\vec{\nabla}\psi . d\vec{S} = \frac{\partial \psi}{\partial n} \hat{n}$

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$$\nabla\psi.\hat{n} = \frac{\partial\psi}{\partial n} \; and \; \nabla\varphi.\hat{n} = \frac{\partial\varphi}{\partial n}$$

$$\nabla\psi.d\vec{S} = \nabla\psi.\hat{n}dS = \frac{\partial\psi}{\partial n}dS$$

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BC230426395: ANILA FATIMA

Time Left 84 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 1 of 10 ( Start time: 11:10:46 PM, 23 November 2023 )

Total Marks: 1

$\oint_C \vec{A}.d\vec{r}$ for $\vec{A} = 2\hat{i}$ becomes

Select the correct option

Reload Math Equations

- $2\oint_C dx$
- $2\oint_C \hat{i}dx$

Click to Save Answer & Move to Next Question

23:11

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BC230426395: ANILA FATIMA

Time Left 88 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 2 of 10 ( Start time: 11:11:25 PM, 23 November 2023 )

Total Marks: 1

The unit vector $\hat{j}$ is normal to the surface

Select the correct option

Reload Math Equations

- $x = 0$
- $z = 0$
- none of these
- $y = 0$

Click to Save Answer & Move to Next Question

2G 4G 23:12

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BC230426395: ANILA FATIMA

Time Left 87 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 3 of 10 ( Start time: 11:12:19 PM, 23 November 2023 )

Total Marks: 1

If $\vec{v} = x\hat{i}$, then the vector field $\vec{v}$ is

Select the correct option

Reload Math Equations

- non solenoidal
- solenoidal

Click to Save Answer & Move to Next Question

2G 4G 23:13

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BC230426395: ANILA FATIMA

Time Left 88 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 4 of 10 ( Start time: 11:13:30 PM, 23 November 2023 )

Total Marks: 1

The functions in Green's theorem will be

Select the correct option

Reload Math Equations

- Discrete derivatives
- Continuous partial derivatives
- Discrete partial derivatives
- Continuous derivatives

Click to Save Answer & Move to Next Question

WhatsApp 23:14

MTH 622

~ asadj4026: b lgta ha

MTH622 - Vectors and Classical Mechanics (Quiz No 1) Quiz Start Time: 11:10 PM, 23 November 2023

Question # 5 of 10 ( Start time: 11:14:43 PM, 23 November 2023 ) Total Marks:

The Green's theorem in plane can be written in tangential form as

Select the correct option

Reload Math Equations

- $\oint_C \vec{A}.d\vec{r} = \int\int_R (\vec{\nabla} \times \vec{A}).\hat{k}dR$
- $\oint_C \vec{B}.\hat{n}dS = \int\int_S \vec{\nabla}.\vec{A}dR$

Click to Save Answer & Move to Next Question

2G 4G 23:15

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BC230426395: ANILA FATIMA

Time Left 87 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 6 of 10 ( Start time: 11:15:44 PM, 23 November 2023 )

Total Marks: 1

The Stoke's theorem uses which of the following operation?

Select the correct option

- Laplacian
- Divergence
- Gradient
- Curl

Click to Save Answer & Move to Next Question

2G 4G 23:17

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BC230426395: ANILA FATIMA

Time Left 84 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 7 of 10 ( Start time: 11:17:08 PM, 23 November 2023 )

Total Marks: 1

The unit normal to the suface $xy - 1 = 0$ is

Select the correct option

Reload Math Equations

- $\frac{1}{\sqrt{x^2+y^2}}(y\vec{i} + x\vec{j})$
- does not exist
- $\frac{1}{\sqrt{x^2+y^2}}(y\vec{k} + x\vec{j})$
- $\frac{1}{\sqrt{x^2+y^2}}(y\vec{i} + x\vec{k})$

Click to Save Answer & Move to Next Question

2G 4G 23:19

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BC230426395: ANILA FATIMA

Time Left 87 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 8 of 10 ( Start time: 11:19:17 PM, 23 November 2023 )

Total Marks: 1

$\oint_C d\vec{r} \times \vec{B}$ for $\vec{B} = x\hat{i}$ becomes

Select the correct option

Reload Math Equations

- $\oint_C (xdz\hat{j} - xdy\hat{k})$
- $\oint_C (xdz\hat{i} + xdy\hat{k})$

Click to Save Answer & Move to Next Question

2G 4G 23:20

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BC230426395: ANILA FATIMA

Time Left 84 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 9 of 10 ( Start time: 11:20:42 PM, 23 November 2023 )

Total Marks: 1

The unit normal to the surface $z = 0$ is

Select the correct option

Reload Math Equations

- $\pm\hat{j}$
- does not exist
- $\pm\hat{k}$
- $\pm\hat{i}$

Click to Save Answer & Move to Next Question

2G 4G 23:21

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BC230426395: ANILA FATIMA

Time Left 81 sec(s)

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:10 PM, 23 November 2023

Question # 10 of 10 ( Start time: 11:21:36 PM, 23 November 2023 )

Total Marks: 1

For $\varphi = x$ the integration $\int_0^1 \int_0^1 \varphi \hat{k} dx dy$ gives

Select the correct option

Reload Math Equations

- $\frac{1}{4}\hat{k}$
- $\frac{1}{2}\hat{k}$

Click to Save Answer & Move to Next Question

BC220422104: IQRA GHAFFAR

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 6 of 10 ( Start time: 10:11:23 AM, 24 November 2023 )

Gauss divergence theorem is used to derive equation of which phenomena

Select the correct option

- all of these
- flow of fluids
- heat conduction
- wave propagation

BC220422104: IQRA GHAFFAR

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 9 of 10 ( Start time: 10:13:15 AM, 24 November 2023 )

$\oint_C d\vec{r} \times \vec{B}$ for $\vec{B} = x\vec{i}$ becomes

Select the correct option

- $\oint_C (xdz\vec{j} - xdy\vec{k})$
- $\oint_C (xdz\vec{i} + xdy\vec{k})$

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BC220422104: IQRA GHAFFAR

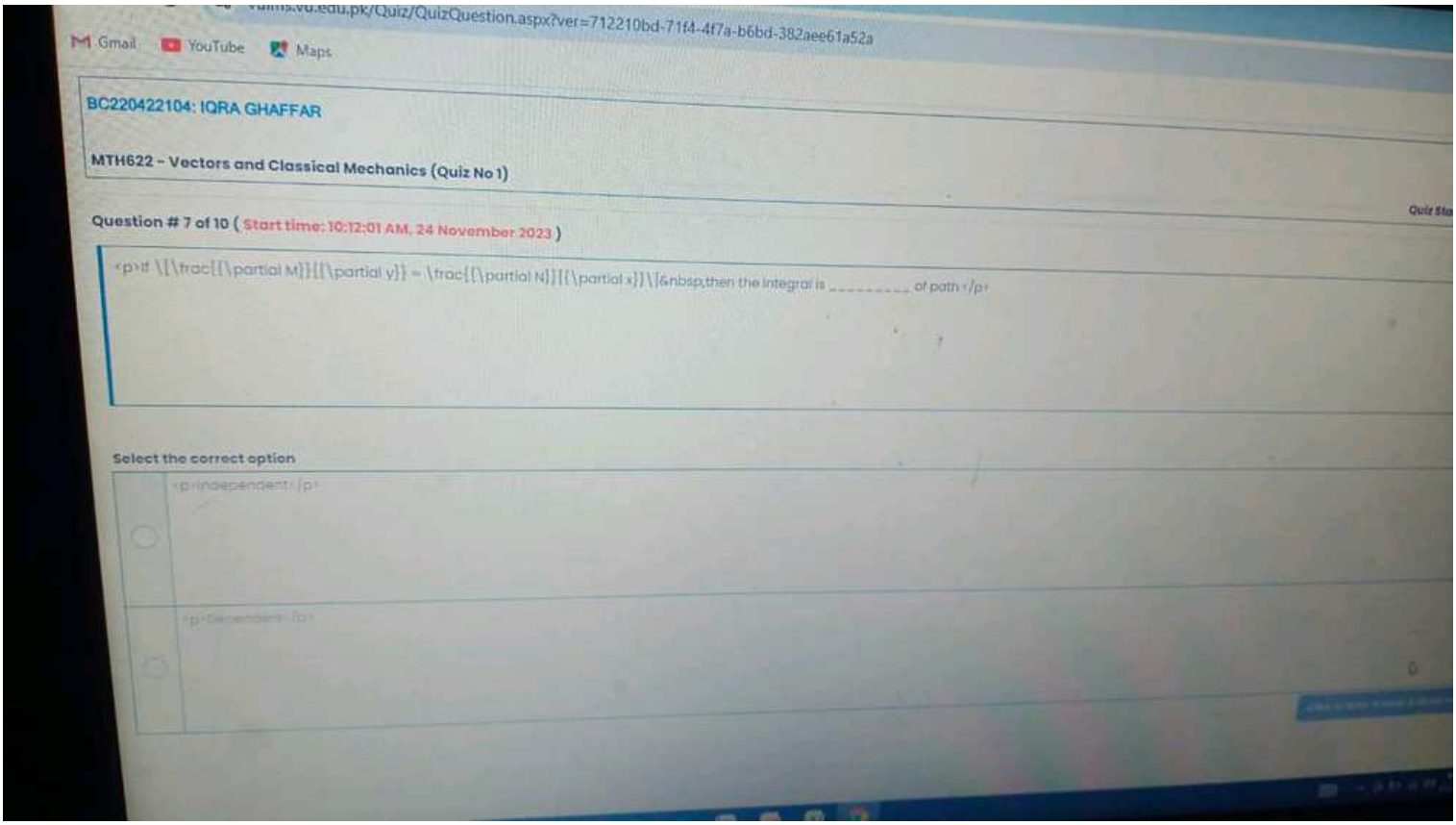
MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 8 of 10 ( Start time: 10:12:34 AM, 24 November 2023 )

If $\hat{n}$ is the unit normal to the surface $S$ and $\psi$ is a scalar point function having continuous partial derivatives then $\vec{\nabla}\psi.\hat{n} = \frac{\partial \psi}{\partial n}$ implies

Select the correct option

- $\vec{\nabla}\psi.d\vec{S} = \frac{\partial \psi}{\partial n}\hat{n}$
- $\vec{\nabla}\psi.d\vec{S} = \frac{\partial \psi}{\partial n}dS$


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BC220422104: IQRA GHAFFAR
MTH622 - Vectors and Classical Mechanics (Quiz No 1)
Question # 7 of 10 ( Start time: 10:12:01 AM, 24 November 2023 )
If \[\frac{[\partial M]}{[\partial y]} = \frac{[\partial N]}{[\partial x]}\] then the integral is _____ of path
Select the correct option
Independent
Dependent

Question # 8 of 30 ( Start time: 12:33:56 PM, 08 July 2020 ) Total Marks: 1

If $\hat{n}$ is the unit normal to the surface $S$ and $\psi$ is a scalar point function having continuous partial derivatives then $\vec{\nabla}\psi.\hat{n} = \frac{\partial \psi}{\partial n}$ implies

Select the correct option

Reload Math Equations

- $\vec{\nabla}\psi.d\vec{S} = \frac{\partial \psi}{\partial n}dS$
- $\vec{\nabla}\psi.d\vec{S} = \frac{\partial \psi}{\partial n}\hat{n}$

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**BC220422104: IQRA GHAFFAR**

**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 10 of 10 ( Start time: 10:14:48 AM, 24 November 2023 )**

The unit normal to the surface $xy - 1 = 0$ is

**Select the correct option**

- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{k} + x\hat{j})$
- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{k})$
- does not exist
- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{j})$

| | |
|---|---|
| ○ | wave propagation |
| ○ | heat conduction |

2

**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 3 of 10 ( Start time: 02:15:24 AM, 24 November 2023 )**

For $\varphi = y$ the integration $\int_0^1 \int_0^1 \varphi \hat{k} dx dy$ gives

**Select the correct option**

| | |
|---|---|
| ● | $\frac{1}{2}\hat{k}$ |
| ○ | $\frac{1}{4}\hat{k}$ |

**Question # 2 of 10 ( Start time: 11:00:41 AM, 24 November 2023 )**

The tangential form of Green's theorem in plane is also called Stokes theorem in the plane.

**Select the correct option**

- true
- false

**Question # 9 of 10 ( Start time: 11:03:46 AM, 24 November 2023 )**

The unit vector $\hat{i}$ is normal to the surface

**Select the correct option**

- none of these
- $x = 0$
- $y = 0$
- $z = 0$

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 7 of 10 ( Start time: 11:02:40 AM, 24 November 2023 )

The unit normal to the $xy$ plane is

Select the correct option

- $\pm\hat{k}$
- $\pm\hat{j}$
- $\pm\hat{i}$
- does not exist

**Question # 3 of 10 ( Start time: 11:01:05 AM, 24 November 2023 )**

If $\vec{v} = \hat{i}$, then the vector field $\vec{v}$ is

**Select the correct option**

- solenoidal
- non solenoidal

11:33 AM

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**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 2 of 10 ( Start time: 11:33:49 AM, 24 November 2023 )**

The unit normal to the surface $z = 0$ is

**Select the correct option**

- ○ does not exist
- ○ $\pm\hat{j}$
- ○ $\pm\hat{i}$
- ◉ $\pm\hat{k}$

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**Question # 5 of 10 ( Start time: 11:36:54 AM, 24 November 2023 )**

If $\vec{\nabla}.\vec{v} = 0$, then the vector field $\vec{v}$ is called

**Select the correct option**

| | |
|---|---|
| ◉ | solenoidal |
| ○ | non solenoidal |

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**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 8 of 10 ( Start time: 11:39:12 AM, 24 November 2023 )**

The functions in Green's theorem will be

**Select the correct option**

- ○ Discrete partial derivatives
- ○ Continuous derivatives
- ◉ Continuous partial derivatives
- ○ Discrete derivatives

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**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 10 of 10 ( Start time: 11:41:27 AM, 24 November 2023 )**

The unit normal to the surface $x + y - 2 = 0$ is

**Select the correct option**

- $\frac{1}{\sqrt{2}}(\hat{i} + \hat{k})$
- $\frac{1}{\sqrt{2}}(\hat{k} + \hat{j})$
- $\frac{1}{\sqrt{2}}(\hat{i} + \hat{j})$
- does not exist

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MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 11:41 AM, 24 November 2

Question # 1 of 10 ( Start time: 11:41:53 AM, 24 November 2023 )

Total Mar

Which relation satisfies the Green’s theorem?

Select the correct option

Reload Math Equation

\oint\limits_C (Mdx + Ndy)  = \int\limits_R [(\frac{\partial N}{\partial y}) - \frac{\partial M}{\partial x}]dxdy

\oint\limits_C (Mdx + Ndy)  = \int\limits_R [(\frac{\partial N}{\partial x}) - \frac{\partial M}{\partial y}]dxdy\

\oint\limits_C (Mdx + Ndy)  = \int\limits_R [(\frac{\partial N}{\partial y}) + \frac{\partial M}{\partial x}]dxdy

\oint\limits_C (Mdx + Ndy)  = \int\limits_R [(\frac{\partial N}{\partial x}) + \frac{\partial M}{\partial y}]dxdy

Click to Save Answer & Move to Next Question

11:44 AM

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**Question # 2 of 10 ( Start time: 11:42:54 AM, 24 November 2023 )**

A fluid of density $\rho(x, y, z, t)$ moves with velocity $v(x, y, z, t)$. If there are no sources or sinks then

**Select the correct option**

Reload

- $\frac{\partial \rho}{\partial t} = 0$
- $\nabla \cdot (\rho v) + \frac{\partial v}{\partial t} = 0$
- $\nabla \cdot (\rho v) = 0$
- $\nabla \cdot (\rho v) + \frac{\partial \rho}{\partial t} = 0$

Click to Save Answer & Move to

11:40 AM

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**Question # 9 of 10 ( Start time: 11:40:14 AM, 24 November 2023 )**

$\hat{i} \times \vec{\nabla}\varphi$ for $\varphi = x$ becomes

**Select the correct option**

- (●) $\hat{j}$
- ( ) $\vec{0}$

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11:38 AM

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**Question # 7 of 10 ( Start time: 11:37:52 AM, 24 November 2023 )**

A fluid of density $\rho(x, y, z, t)$ moves with velocity $v(x, y, z, t)$. If there are no sources or sinks then

**Select the correct option**

| | |
|---|---|
| ○ | $\nabla.(\rho v) = 0$ |
| ● | $\frac{\partial \rho}{\partial t} = 0$ |
| ○ | $\nabla.(\rho v) + \frac{\partial v}{\partial t} = 0$ |
| ○ | $\nabla.(\rho v) + \frac{\partial v}{\partial t} = 0$ |

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11:46 AM

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Question # 5 of 10 ( Start time: 11:44:38 AM, 24 November 2023 )

The Stoke's theorem uses which of the following operation?

Select the correct option

- Divergence
- Gradient
- Laplacian
- Curl

Click to Save Answer &

Question # 1 of 10 ( Start time: 11:26:14 AM, 24 November 2023 )

For $\varphi = y$ the integration $\int_0^1 \int_0^1 \varphi \hat{k} dx dy$ gives

**Select the correct option**

| | |
|---|---|
| ○ | $\frac{1}{4}\hat{k}$ |
| ○ | $\frac{1}{2}\hat{k}$ |

11:48 AM

vulms.vu.edu.pk/Quiz/Qui

MTH622 - Vectors and Classical Mechanics (Quiz No 1) Quiz

**Question # 6 of 10 ( Start time: 11:46:25 AM, 24 November 2023 )**

The functions in Green's theorem will be

**Select the correct option**

- Discrete partial derivatives
- Discrete derivatives
- Continuous derivatives
- Continuous partial derivatives

Click to s

11:48 AM

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MTH522 - Vectors and Classical Mechanics (Quiz No 1) Quiz

Question # 7 of 10 ( Start time: 11:47:00 AM, 24 November 2023 )

$\vec{j} \times \vec{\nabla}\varphi$ for $\varphi = j$ becomes

Select the correct option

- $\vec{i}$
- $\vec{0}$

Click to S

11:49 AM

vulms.vu.edu.pk/Quiz/Qui

The unit normal to the xy plane is

**Select the correct option**

- $\pm\hat{j}$
- $\pm\hat{k}$
- $\pm\hat{i}$
- does not exist

Click to Save Answer & M

11:36 AM

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Question # 4 of 10 ( Start time: 11:36:04 AM, 24 November 2023 )

The Green's theorem in plane can be written in tangential form as

Select the correct option

- $\oint_C \vec{B}.\hat{n}dS = \int\int_S \vec{\nabla}.\vec{A}dR$
- $\oint_C \vec{A}.d\vec{r} = \int\int_R (\vec{\nabla} \times \vec{A}).\hat{k}dR$

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11:51 AM

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**MTH622 - Vectors and Classical Mechanics (Quiz No 1)**

**Question # 9 of 10 ( Start time: 11:49:26 AM, 24 November 2023 )**

The second vector form of Green's theorem is also called

**Select the correct option**

- (●) tangential form of Green's theorem
- ( ) Normal form of Green's theorem

11:52 AM

vulms.vu.edu.pk/Quiz/Qui

**Question # 10 of 10 ( Start time: 11:50:12 AM, 24 November 2023 )**

The unit vector $\vec{j}$ is normal to the surface

**Select the correct option**

| | |
|---|---|
| ○ | $z = 0$ |
| ○ | $x = 0$ |
| ● | $y = 0$ |
| ○ | none of these |

11:34 AM

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MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 3 of 10 ( Start time: 11:34:39 AM, 24 November 2023 )

The divergence theorem converts

Select the correct option

- Surface to line integral
- Surface to volume integral
- Line to surface integral
- Volume to line integral

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11:56 AM

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TH622 - Vectors and Classical Mechanics (Quiz No 1) Quiz Start Time: 11

estion # 1 of 10 ( Start time: 11:56:40 AM, 24 November 2023 )

If $\hat{n}$ is the unit normal to the surface $S$ and $\psi$ is a scalar point function having continuous partial derivatives then $\vec{\nabla}\psi$

lect the correct option

- $\vec{\nabla}\psi . d\vec{S} = \frac{\partial \psi}{\partial n} dS$
- $\vec{\nabla}\psi . d\vec{S} = \frac{\partial \psi}{\partial n} \hat{n}$

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11:59 AM

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The unit normal to the surface $xy - 1 = 0$ is

**Select the correct option**

| | |
|---|---|
| ○ | $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{k})$ |
| ○ | does not exist |
| ◉ | $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{j})$ |
| ○ | $\frac{1}{\sqrt{x^2+y^2}}(y\hat{k} + x\hat{j})$ |

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**Question # 8 of 10 ( Start time: 02:48:30 AM, 24 November 2023 )** **Total Marks:** 1

$\oint_C d\vec{r} \times \vec{B}$ for $\vec{B} = y\hat{j}$ becomes

**Select the correct option**

Reload Math Equations

- $\oint_C(-ydz\hat{i} + ydx\hat{k})$
- $\oint_C(ydz\hat{i} + ydy\hat{k})$

12:01 PM

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The identity $\oint_C \vec{B} \times d\vec{r} = \int \int_S (\hat{n} \times \vec{\nabla}) \times \vec{B} dS$ is

**Select the correct option**

| | |
|---|---|
| ○ | false |
| ○ | true |

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12:02 PM

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**Question # 5 of 10 ( Start time: 12:02:02 PM, 24 November 2023 )**

Unit circle is not a simple closed curve.

**Select the correct option**

- ○ true
- ◉ false

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12:03 PM

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**uestion # 7 of 10 ( Start time: 12:03:53 PM, 24 November 2023 )**

The tangential form of Green's theorem in plane is also called Stokes theorem in the plane.

**lect the correct option**

- true
- false

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12:06 PM

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**Question # 9 of 10 ( Start time: 12:06:46 PM, 24 November 2023 )**

$\oint_C d\vec{r} \times \vec{B}$ for $\vec{B} = y\hat{j}$ becomes

**Select the correct option**

| | |
|---|---|
| ○ | $\oint_C(-ydz\hat{i} + ydx\hat{k})$ |
| ● | $\oint_C(ydz\hat{i} + ydy\hat{k})$ |

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12:09 PM

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**Question # 10 of 10 ( Start time: 12:09:40 PM, 24 November 2023 )**

The second vector form of Green's theorem is also called

**Select the correct option**

- tangential form of Green's theorem
- Normal form of Green's theorem

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Question # 2 of 10 ( Start time: 12:12:16 PM, 24 November 2023 )

The unit normal to the surface $x = 0$ is

**Select the correct option**

- does not exist
- $\pm\hat{j}$
- $\pm\hat{k}$
- $\pm\hat{i}$

12:13 PM

4G 11.4 K/s 59

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3

BC220404780: NAUMAN JAVED

Time Left 87 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 1 of 10 ( Start time: 12:12:57 PM, 24 November 2023 )

Total Marks: 1

Evaluate $\int \varphi d\vec{r}$ for $\varphi = 1$

Select the correct option

Reload Math Equations

- $xyz(\vec{i} + \vec{j} + \vec{k})$
- $x\vec{i} + y\vec{j} + z\vec{k}$

Click to Save Answer & Move to Next Question

□ ○ ◁

Gauss divergence theorem is used to derive equation of which phenomena

**Select the correct option**

- flow of fluids
- heat conduction
- wave propagation
- all of these

The identity $\oint_C \vec{B} \times d\vec{r} = \int\int_S (\hat{n} \times \vec{\nabla}) \times \vec{B} dS$ is

**Select the correct option**

| | |
|---|---|
| ○ | false |
| ○ | true |

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BC220404780: NAUMAN JAVED

Time Left 88 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 2 of 10 ( Start time: 12:13:46 PM, 24 November 2023 )

Total Marks: 1

The tangential form of Green's theorem in plane is also called Stokes theorem in the plane

Select the correct option

Reload Math Equations

- true
- false

Click to Save Answer & Move to Next Question

12:14 PM

4G 31.8 K/s 58

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BC220404780: NAUMAN JAVED

Time Left 89 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 3 of 10 ( Start time: 12:14:30 PM, 24 November 2023 )

Total Marks: 1

The unit normal to the surface $x + y - 2 = 0$ is

Select the correct option

Reload Math Equations

- $\frac{1}{\sqrt{2}}(\hat{i} + \hat{j})$
- does not exist
- $\frac{1}{\sqrt{2}}(\hat{k} + \hat{j})$
- $\frac{1}{\sqrt{2}}(\hat{i} + \hat{k})$

Click to Save Answer & Move to Next Question

3

**Question # 5 of 10 ( Start time: 12:14:41 PM, 24 November 2023 )**

The unit vector $\hat{i}$ is normal to the surface

**Select the correct option**

- none of these
- $x = 0$
- $y = 0$
- $z = 0$

**Question # 6 of 10 ( Start time: 12:15:12 PM, 24 November 2023 )**

The unit normal to the surface $z = 0$ is

**Select the correct option**

- $\pm\hat{i}$
- does not exist
- $\pm\hat{j}$
- $\pm\hat{k}$

12:15 PM

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BC220404780: NAUMAN JAVED

Time Left 87 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 4 of 10 ( Start time: 12:15:25 PM, 24 November 2023 )

Total Marks: 1

The unit normal to the surface $xy - 1 = 0$ is

Select the correct option

Reload Math Equations

- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{k})$
- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{k} + x\hat{j})$
- does not exist
- $\frac{1}{\sqrt{x^2+y^2}}(y\hat{i} + x\hat{j})$

Click to Save Answer & Move to Next Question

Question # 7 of 10 ( Start time: 12:16:15 PM, 24 November 2023 )

$\hat{j} \times \vec{\nabla}\varphi$ for $\varphi = j$ becomes

Select the correct option

- $\hat{i}$
- $\vec{0}$

BC230416158: HAJRA BIBI

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 5 of 10 ( Start time: 12:16:18 PM, 24 November 2023 )

Both double and triple integrals can be used to calculate

Select the correct option

- None of these
- area under the curve
- volume of the given object
- length of curve

Type here to search

Question # 8 of 10 ( Start time: 12:17:26 PM, 24 November 2023 )

The unit normal to the surface $yz - 1 = 0$ is

**Select the correct option**

- $\frac{1}{\sqrt{y^2+z^2}}(z\hat{j} + y\hat{k})$
- does not exist
- $\frac{1}{\sqrt{y^2+z^2}}(y\hat{j} + z\hat{k})$
- $\frac{1}{\sqrt{y^2+z^2}}(y\hat{i} + z\hat{k})$

12:18 PM

4G 21.5 K/s 57

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3

BC220404780: NAUMAN JAVED

Time Left 86 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 5 of 10 ( Start time: 12:17:59 PM, 24 November 2023 )

Total Marks: 1

The unit vector $j$ is normal to the surface

Select the correct option

Reload Math Equations

- $y = 0$
- $z = 0$
- none of these
- $x = 0$

Click to Save Answer & Move to Next Question

Question # 9 of 10 ( Start time: 12:18:12 PM, 24 November 2023 )

$\oint_C d\vec{r} \times \vec{B}$ for $\vec{B} = x\hat{i}$ becomes

Select the correct option

- $\oint_C (xdz\hat{j} - xdy\hat{k})$
- $\oint_C (xdz\hat{i} + xdy\hat{k})$

BC230416158 HAJRA BIBI

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

Question # 7 of 10 ( Start time: 12:17:58 PM, 24 November 2023 )

The unit normal to the surface $yz - 1 = 0$ is

Select the correct option

- $\frac{1}{\sqrt{y^2+z^2}}(x\hat{j} + y\hat{k})$
- $\frac{1}{\sqrt{y^2+z^2}}(y\hat{i} + x\hat{k})$
- does not exist
- $\frac{1}{\sqrt{y^2+z^2}}(y\hat{j} + z\hat{k})$

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Time Left 87 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 6 of 10 ( Start time: 12:18:48 PM, 24 November 2023 )

Total Marks: 1

For $\varphi = x$ the integration $\int_0^1 \int_0^1 \varphi \hat{k} dx dy$ gives

Select the correct option

Reload Math Equations

- $\frac{1}{2}\hat{k}$
- $\frac{1}{3}\hat{k}$

Click to Save Answer & Move to Next Question

If $\vec{v} = x\hat{i}$, then the vector field $\vec{v}$ is

**Select the correct option**

- solenoidal
- non solenoidal

12:19 PM

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Time Left 87 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 7 of 10 ( Start time: 12:19:35 PM, 24 November 2023 )

Total Marks: 1

The unit normal to the surface $x + z - 1 = 0$ is

Select the correct option

Reload Math Equations

- does not exist
- $\frac{1}{\sqrt{2}}(\vec{i} + \vec{j})$
- $\frac{1}{\sqrt{2}}(\vec{i} + \vec{k})$
- $\frac{1}{\sqrt{2}}(\vec{k} + \vec{j})$

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Time Left 87 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 8 of 10 ( Start time: 12:20:26 PM, 24 November 2023 )

Total Marks: 1

The first vector form of Green's theorem is also called

Select the correct option

- Normal form of Green's theorem
- tangential form of Green's theorem

Click to Save Answer & Move to Next Question

$\oint_C$ ∬

where $dR = dxdy$

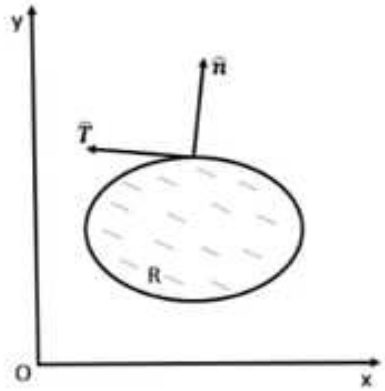
A generalization of this surface to S in space having C as boundary leads quite natura
Stokes' theorem. This form of Green's theorem is sometimes called Stokes' theorem
plane.

The Green's theorem in plane is a special case of Stokes theorem.

## Second Vector Form (or normal form) of Green's Theorem

As we derive in first vector form of Green's theorem

$$Mdx + Ndy = \vec{A}.d\vec{r} = \vec{A}.\hat{T}ds$$




where $\hat{T} = \frac{d\vec{r}}{ds}$ =unit tangent vector to C as shown in figure.

If $\hat{n}$ is the outward drawn unit normal to C, then $\hat{T} = \hat{k}$ : 47 / 63

$$Mdx + Ndy = \vec{A}.\hat{T}ds = \vec{A}.(\hat{k} \times \hat{n})ds = \vec{B}.\hat{n}ds$$

Since $\vec{A} = M\hat{i} + N\hat{j}$, therefore

$$\vec{B} = \vec{A} \times \hat{k} = (M\hat{i} + N\hat{j}) \times \hat{k} = N\hat{i} - M\hat{j}$$

and

$$\nabla.\vec{B} = \frac{\partial N}{\partial x} - \frac{\partial M}{\partial y}$$

then the equation (1) becomes

$$\oint_C \vec{B}.\hat{n}\,ds = \iint_S \nabla.\vec{B}\,dR$$

where $dR = dxdy$

these are the required vector notations of Green's theorem.

12:21 PM

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Time Left 87 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 9 of 10 ( Start time: 12:20:19 PM, 24 November 2023 )

Total Marks: 1

$\oint_C d\vec{r} \times \vec{B}$ for $\vec{B} = x\hat{i}$ becomes

Select the correct option

Reload Math Equations

- $\oint_C (xdz\hat{i} + xdy\hat{k})$
- $\oint_C (xdz\hat{j} - xdy\hat{k})$

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Time Left 82 sec(s)

MTH522 - Vectors and Classical Mechanics (Quiz No 1)

Quiz Start Time: 12:12 PM, 24 November 2023

Question # 10 of 10 ( Start time: 12:23:04 PM, 24 November 2023 )

Total Marks: 1

Gauss divergence theorem is used to derive equation of which phenomena

Select the correct option

Reload Math Equations

- wave propagation
- all of these
- heat conduction
- flow of fluids

Click to Save Answer & Move to Next Question

MTH622 - Vectors and Classical Mechanics (Quiz No 1)

**Question # 3 of 10 ( Start time: 02:15:24 AM, 24 November 2023 )**

For $\varphi = y$ the integration $\int_0^1 \int_0^1 \varphi \hat{k} dx dy$ gives

**Select the correct option**

- (●) $\frac{1}{2}\hat{k}$
- ( ) $\frac{1}{4}\hat{k}$