



Grand Quiz Spring 2021

Subject Code MTH301 lecture 1 to 22

Solved By Riz Mughal



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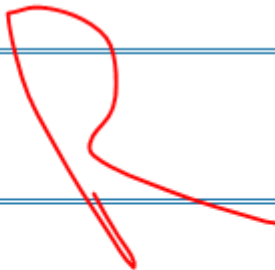
I'm providing 100% correct quiz solution. You can visit my YouTube channel and get more information about all other subjects' quizzes and final year project (CS619).

RIZ MUGHAL (SQA ENGINEER)

Question # 1 of 30 (Start time: 09:21:09 AM, 26 June 2021)

Face of the parabola $y = ax^2 + bx + c$ is opening upward when

Select the correct option


- | | |
|----------------------------------|---------|
| <input type="radio"/> | $b > 0$ |
| <input type="radio"/> | $b < 0$ |
| <input type="radio"/> | $a < 0$ |
| <input checked="" type="radio"/> | $a > 0$ |
- 

Question # 2 of 30 (Start time: 09:21:29 AM, 26 June 2021)

If $w = x + y$ while $x = r + s$ and $y = r - s$ then which of the following is partial derivative of w w.r.t s ?

Select the correct option

[Reload Mat](#)

- | | |
|----------------------------------|----|
| <input checked="" type="radio"/> | 0 |
| <input type="radio"/> | -1 |
| <input type="radio"/> | 2 |
| <input type="radio"/> | 1 |
- 


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Question # 3 of 30 (Start time: 09:22:23 AM, 26 June 2021)

The surface $z=f(x,y)$ falls (decreases) most rapidly at any point in the ----- of Gradient(z).

Select the correct option

<input type="radio"/>	Direction
<input type="radio"/>	Direction perpendicular to
<input type="radio"/>	Arbitrary direction
<input checked="" type="radio"/>	Opposite to the direction




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Question # 4 of 30 (Start time: 09:22:48 AM, 26 June 2021)

XY-Plane consist of all points where

Select the correct option

<input type="radio"/>	$xy=0$
<input type="radio"/>	$xy=1$
<input checked="" type="radio"/>	$z=0$
<input type="radio"/>	$z=1$




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Question # 5 of 30 (Start time: 09:23:03 AM, 26 June 2021)

What is the condition of the extreme value theorem?

Select the correct option

- | | |
|----------------------------------|--|
| <input checked="" type="radio"/> | A function must be continuous on a closed interval * |
| <input type="radio"/> | A function must be continuous and differential |
| <input type="radio"/> | No conditions are necessary |
| <input type="radio"/> | A function must differential |
- 
- A red handwritten mark, possibly a signature or initials, is written over the second and third options of the multiple-choice list.

Question # 6 of 30 (Start time: 09:23:19 AM, 26 June 2021)

If $f(x, y, z) = x^2 + 2y - 3z^2$ then f_x , f_y and f_z are

Select the correct option

[Reload](#)

- | | |
|----------------------------------|--------------------------------------|
| <input type="radio"/> | $f_x = 2x, f_y = 2$ and $f_z = 6z$ |
| <input checked="" type="radio"/> | $f_x = 2x, f_y = 2$ and $f_z = -6z$ |
| <input type="radio"/> | $f_x = 2x, f_y = 2y$ and $f_z = 6z$ |
| <input type="radio"/> | $f_x = 2x, f_y = 2y$ and $f_z = -6z$ |

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

Question # 7 of 30 (Start time: 09:23:42 AM, 26 June 2021)

Can we evaluate the following integral in given order of integration

$$\int_0^{\frac{1}{2}} \int_{2x}^1 e^{y^2} dy dx$$

Select the correct option

<input type="radio"/>	Yes
<input checked="" type="radio"/>	No

R

Question # 8 of 30 (Start time: 09:24:02 AM, 26 June 2021)

$$\text{The } \int_0^1 2xe^{x^2} dx =$$

Select the correct option


- | | |
|----------------------------------|-----------|
| <input type="radio"/> | $e + 1$ |
| <input type="radio"/> | e^{x^2} |
| <input checked="" type="radio"/> | $e - 1$ |
| <input type="radio"/> | e |

Click to Save Answer & M

Question # 9 of 30 (Start time: 09:24:18 AM, 26 June 2021)

If a vector of magnitude '4' is making angle 30-degree with Y-axis then its component vector along x-axis is -----

Select the correct option

- | | |
|----------------------------------|--------------|
| <input type="radio"/> | $2\sqrt{3}$ |
| <input type="radio"/> | $-2\sqrt{3}$ |
| <input checked="" type="radio"/> | 2 |
| <input type="radio"/> | -2 |
- 

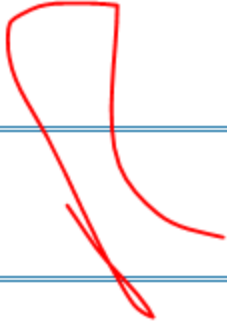
Question # 10 of 30 (Start time: 09:24:34 AM, 26 June 2021)

The function

$$f(x, y, z) = \frac{(x^2 + yz)}{(xy + z)}$$

is discontinuous when

Select the correct option

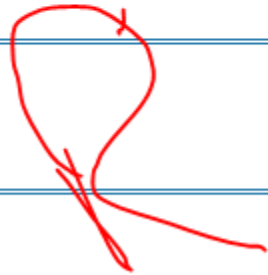
- | | |
|----------------------------------|-----------------|
| <input type="radio"/> | $xy > z$ |
| <input type="radio"/> | $x + y + z = 0$ |
| <input checked="" type="radio"/> | $xy + z = 0$ |
| <input type="radio"/> | $x^2 + yz = 0$ |
- 

Question # 11 of 30 (Start time: 09:25:05 AM, 26 June 2021)

Value of the function $f(x, y, z) = \sqrt{x^2 + y^2 + z^2}$ at the point $(0, 3, 0)$ is _____

Select the correct option




- | | |
|----------------------------------|-------------|
| <input type="radio"/> | $2\sqrt{2}$ |
| <input type="radio"/> | 9 |
| <input checked="" type="radio"/> | 3 |
| <input type="radio"/> | $\sqrt{3}$ |
- 

Question # 12 of 30 (Start time: 09:25:26 AM, 26 June 2021)

$$\int_1^3 \int_0^1 xy \, dx \, dy = \text{-----}$$

Select the correct option

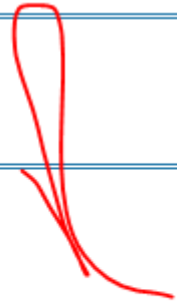
- | | | |
|----------------------------------|---|----------------|
| <input type="radio"/> | | $\frac{3}{4}$ |
| <input type="radio"/> | | $\frac{7}{12}$ |
| <input checked="" type="radio"/> | | $\frac{9}{4}$ |
| <input type="radio"/> | 3 | |
- 

Question # 13 of 30 (Start time: 09:25:41 AM, 26 June 2021)

Range of the function is

$$f(x, y, z) = \sqrt{x^2 + y^2 + z^2}$$

Select the correct option

- | | |
|----------------------------------|----------------------|
| <input type="radio"/> | $(0, +\infty)$ |
| <input type="radio"/> | $(-\infty, 0)$ |
| <input checked="" type="radio"/> | $[0, +\infty)$ |
| <input type="radio"/> | $(-\infty, +\infty)$ |
- 

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Question # 14 of 30 (Start time: 09:25:55 AM, 26 June 2021)

Let $f(x, y)$ be a function with continuous second order partial derivatives in some circle centered at a critical point (x_0, y_0) and, let $D = f_{xx}(x_0, y_0)f_{yy}(x_0, y_0) - [f_{xy}(x_0, y_0)]^2$

Select the correct option

- | | |
|----------------------------------|--|
| <input type="radio"/> | $f(x, y)$ has a relative minimum at (x_0, y_0) . |
| <input type="radio"/> | No conclusion can be drawn. |
| <input checked="" type="radio"/> | $f(x, y)$ has a saddle point at (x_0, y_0) . |
| <input type="radio"/> | $f(x, y)$ has a relative maximum at (x_0, y_0) . |

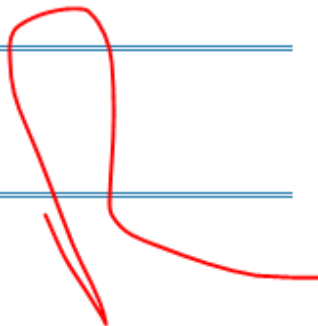
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Question # 15 of 30 (Start time: 09:26:24 AM, 26 June 2021)

 $x = 3 \cos \theta, y = 3 \sin \theta; 0 \leq \theta \leq \pi$, is a _____ form of a curve in the plane.

Select the correct option


Reload

- | | |
|----------------------------------|-------------------|
| <input type="radio"/> | parametric vector |
| <input checked="" type="radio"/> | parametric |
| <input type="radio"/> | explicit |
| <input type="radio"/> | implicit |
- 

Question # 16 of 30 (Start time: 09:26:46 AM, 26 June 2021)

If $w = f(x, y)$ where $x = g(r, s)$ then $\frac{\partial w}{\partial r} =$

Select the correct option


- | | |
|----------------------------------|---|
| <input checked="" type="radio"/> | $\frac{\partial w}{\partial r} = \frac{dw}{dx} \frac{\partial x}{\partial r} + \frac{dw}{dy} \frac{\partial y}{\partial r}$ |
| <input type="radio"/> | $\frac{\partial w}{\partial r} = \frac{dw}{dy} \frac{\partial y}{\partial r} + \frac{dw}{dx} \frac{\partial x}{\partial s}$ |
| <input type="radio"/> | $\frac{\partial w}{\partial r} = \frac{dw}{ds} \frac{\partial s}{\partial r} + \frac{dw}{dy} \frac{\partial y}{\partial r}$ |
| <input type="radio"/> | $\frac{\partial w}{\partial r} = \frac{dw}{dx} \frac{\partial x}{\partial w} - \frac{dw}{dy} \frac{\partial y}{\partial r}$ |
- 

Question # 17 of 30 (Start time: 09:27:03 AM, 26 June 2021)

x - coordinate of vertex of parabola $y = 3x^2 + 6x + 8$ is

Select the correct option

<input checked="" type="radio"/>	-1
<input type="radio"/>	1
<input type="radio"/>	3
<input type="radio"/>	6



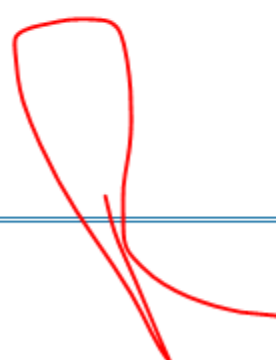
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Question # 18 of 30 (Start time: 09:27:17 AM, 26 June 2021)

Length or magnitude of a unit vector is-----.

Select the correct option

<input type="radio"/>	0
<input checked="" type="radio"/>	1



Question # 19 of 30 (Start time: 09:27:35 AM, 26 June 2021)

Which of the following is the representation of spherical coordinates

Select the correct option

- | | |
|----------------------------------|---------------------------|
| <input type="radio"/> | (r, θ, z) |
| <input checked="" type="radio"/> | (ρ, θ, φ) |
| <input type="radio"/> | (ρ, φ, z) |
| <input type="radio"/> | (x, y, z) |

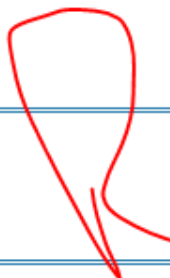
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Question # 20 of 30 (Start time: 09:27:51 AM, 26 June 2021)

Tot

Position of any point in the plane can be obtained by the two perpendicular lines known as x and y axes and together we call it as _____ coordinates system.

Select the correct option


- | | |
|----------------------------------|-------------|
| <input type="radio"/> | Spherical |
| <input type="radio"/> | Rectangular |
| <input type="radio"/> | Cylindrical |
| <input checked="" type="radio"/> | Cartesian |
- 

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Question # 21 of 30 (Start time: 09:28:07 AM, 26 June 2021)

Cylindrical coordinate system is used to determine the position of any object in

Select the correct option

- | | |
|----------------------------------|-----------------|
| <input type="radio"/> | one dimension |
| <input checked="" type="radio"/> | three dimension |
| <input type="radio"/> | two dimension |
| <input type="radio"/> | any dimension |
- 


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Question # 22 of 30 (Start time: 09:28:22 AM, 26 June 2021)

Which coordinate system uses two distances and one angle?

Select the correct option


<input checked="" type="radio"/>	cylindrical
<input type="radio"/>	spherical
<input type="radio"/>	rectangular
<input type="radio"/>	none of these



Question # 23 of 30 (Start time: 09:28:49 AM, 26 June 2021)

If $w = f(x)$ where $x = g(r, s)$ then $\frac{\partial w}{\partial s} =$

Select the correct option

- | | |
|----------------------------------|---|
| <input type="radio"/> | $\frac{\partial w}{\partial s} = \frac{dw}{ds} \frac{\partial s}{\partial s}$ |
| <input checked="" type="radio"/> | $\frac{\partial w}{\partial s} = \frac{dw}{dx} \frac{\partial x}{\partial s}$ |
| <input type="radio"/> | $\frac{\partial w}{\partial s} = \frac{dw}{dr} \frac{\partial r}{\partial s}$ |
| <input type="radio"/> | $\frac{\partial w}{\partial s} = \frac{dw}{ds} \frac{\partial s}{\partial r}$ |
- 


Question # 24 of 30 (Start time: 09:29:09 AM, 26 June 2021)

Partial derivative of

$$f(x, y) = x^2 + y^2 + xy$$

with respect to y is

Select the correct option

- | | |
|----------------------------------|-----------------|
| <input type="radio"/> | $x^2 + 2y + xy$ |
| <input type="radio"/> | $x^2 + 2y + x$ |
| <input checked="" type="radio"/> | $2y + x$ |
| <input type="radio"/> | None of these |
- 


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Question # 25 of 30 (Start time: 09:29:26 AM, 26 June 2021)

In rectangular coordinate system, the point $(1, 5)$ lies in

Select the correct option

<input type="radio"/>	fourth quadrant
<input checked="" type="radio"/>	first quadrant
<input type="radio"/>	third quadrant
<input type="radio"/>	second quadrant




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Question # 26 of 30 (Start time: 09:29:41 AM, 26 June 2021)

The differentiable functions are continuous in its domain.

Select the correct option

<input type="radio"/>	nowhere
<input checked="" type="radio"/>	everywhere
<input type="radio"/>	somewhere
<input type="radio"/>	only at (0,0)




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Question # 27 of 30 (Start time: 09:29:57 AM, 26 June 2021)

Double integral is used to find the ----- of solid.

Select the correct option

<input type="radio"/>	width
<input type="radio"/>	none of these
<input checked="" type="radio"/>	volume
<input type="radio"/>	surface



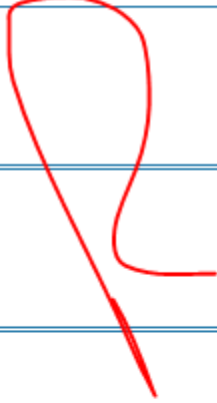
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Question # 28 of 30 (Start time: 09:30:11 AM, 26 June 2021)

Value of the function $f(x, y, z) = xy + z$ at the point $(0, 1, 1)$ is _____.

Select the correct option


<input type="radio"/>	2
<input checked="" type="radio"/>	1
<input type="radio"/>	3
<input type="radio"/>	0



Question # 29 of 30 (Start time: 09:30:26 AM, 26 June 2021)

Value of the function $f(x, y, z) = xy + z$ at the point $(1, x^3, y^2)$

Select the correct option

- | | |
|----------------------------------|-------------|
| <input type="radio"/> | $y + z$ |
| <input checked="" type="radio"/> | $x^3 + y^2$ |
| <input type="radio"/> | $xy + z^2$ |
| <input type="radio"/> | $x^3 + z$ |
- 

Question # 30 of 30 (Start time: 09:30:44 AM, 26 June 2021)

The function of the form $f(x, y) = 3x^2x^5$ is _____ in the domain.

Select the correct option

- | | |
|----------------------------------|------------------------------|
| <input type="radio"/> | discontinuous |
| <input type="radio"/> | may or may not be continuous |
| <input checked="" type="radio"/> | continuous everywhere |
| <input type="radio"/> | piecewise continuous |

[Click to Save Answer & M](#)



Thank you for watching

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RIZ MUGHAL (SQA ENGINEER)





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