

Question No : 1 of 26

Marks: 1 (Budgeted Time 1 Min)

Which of the following is geometrical representation of set of real numbers?

Answer (Please select your correct option)

Co-ordinate line

xy-plane

correct

Sphere

Circular cylinder

Made By: Waqar Siddhu

Question No : 2 of 26

Marks: 1 (Budgeted Time 1 Min)

There is one-to-one correspondence between the set of points on a co-ordinate line and -----

Answer (Please select your correct option)

Set of real numbers

correct

Set of integers

Set of natural numbers

Set of rational numbers

Made By: Waqar Siddhu

Question No : 3 of 26

Marks: 1 (Budgeted Time 1 Min)

An ordered triple corresponds to ----- in a three dimensional space.

Answer (Please select your correct option)

A unique point

A point in each octant

Three points

Infinite number of points

correct

Made By: Waqar Siddhu

Question No : 4 of 26

Marks: 1 (Budgeted Time 1 Min)

If the positive directions of x and y axes are known then ----- the positive direction of z-axis.

Answer (Please select your correct option)

Horizontal rightward direction is

Horizontal leftward direction is

Left hand rule tells

Right hand rule tells

correct not shoure

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)

If a function is not defined at some point, then its limit ----- exist at that point.

Answer (Please select your correct option)

Always

Never

May

corret

Made By: Waqar Sidhu

Question No : 6 of 26

Marks: 1 (Budgeted Time 1 Min)

A composition of continuous functions

Answer (Please select your correct option)

is always continuous

correct

may or may not be continuous

is discontinuous

is piece-wise continuous

Made By: Waqar Siddhu

Question No : 7 of 26

Marks: 1 (Budgeted Time 1 Min)

According to the Euler's theorem, the order of partial differentiation can be changed, provided the function and all of its partial derivatives are

Answer (Please select your correct option)

Piece-wise continuous

Continuous

Discontinuous

corret

Made By: Waqar Sidhu

Question No : 8 of 26

Marks: 1 (Budgeted Time 1 Min)

If $x = f(r, s)$ and $r = g(t)$, $s = h(t)$, then derivative of x with respect to t is written as.....

Answer (Please select your correct option)

$\frac{\partial x}{\partial t}$

(x, t)

$\frac{\partial^2 x}{\partial t^2}$

$\frac{dx}{dt}$

correct

Made By: Waqar Siddhu

Question No : 9 of 26

Marks: 1 (Budgeted Time 1 Min)

A vector in a plane is always represented by a

Answer (Please select your correct option)

Line

Curve

Line segment

None of these.

correct

Made By: Waqar Siddhu

Question No : 10 of 26

Marks: 1 (Budgeted Time 1 Min)

If two vectors \vec{a} and \vec{b} have the relation $\vec{a} = \lambda \vec{b}$ where λ is a non-zero scalar then \vec{a} and \vec{b} are _____ to each other.

Answer (Please select your correct option)

Orthogonal

Non-parallel

Parallel

None of these

Made By: Waqar Siddhu

Question No : 11 of 26

Marks: 1 (Budgeted Time 1 Min)

The function decreases most rapidly in the direction of

Answer (Please select your correct option)

$-\nabla f$

$-\|\nabla f\|$

$\nabla f \times \hat{a}$

$\|\nabla f\|$

Made By: Waqar Siddhu

Question No : 12 of 26

Marks: 1 (Budgeted Time 1 Min)

The direction of gradient at any point on the surface is to the tangent plane at that point.

Answer (Please select your correct option)

parallel

perpendicular

opposite direction

None of these.

correct

Made By: Waqar Siddhu

Question No : 13 of 26

Marks: 1 (Budgeted Time 1 Min)

$2x^2 + y^2 = 4$ is the form of equation of a curve.

Answer (Please select your correct option)

Parametric

Implicit

correct

Symmetric

Explicit

Made By: Waqar Siddhu

Question No : 14 of 26

Marks: 1 (Budgeted Time 1 Min)

If $f(x, y)$ has a relative extremum at a point (x_0, y_0) and both the first partial derivatives of f exist at this point, then.....

Answer (Please select your correct option)

$f_x(x_0, y_0) = 0$ and $f_y(x_0, y_0) \neq 0$

$f_x(x_0, y_0) \leq 0$ and $f_y(x_0, y_0) \leq 0$

$f_x(x_0, y_0) \geq 0$ and $f_y(x_0, y_0) \geq 0$

$f_x(x_0, y_0) = 0$ and $f_y(x_0, y_0) = 0$

correct

Made By: Waqar Siddhu

Question No : 15 of 26

Marks: 1 (Budgeted Time 1 Min)

For a function $f(x)$, if $f'(x)$ is equal to some non-zero constant, then $f(x)$ will have

Answer (Please select your correct option)

At least one critical point

correct

No critical point

Non-zero critical points

None of these

Made By: Waqar Siddhu

Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)

Let x, y, z be the length, width and height of an open rectangular box. The surface area of the box will be

Answer (Please select your correct option)

$A = xy + 2yz + 2xz$

correct

$A = yz + 4$

$A = xz + yz + zx$

$A = xyz$

Made By: Waqar Siddhu

Question No : 17 of 26

Marks: 1 (Budgeted Time 1 Min)

Double integral of a function $f(x,y)$ represents of the region between the surface defined by the function and the plane which contains its domain.

Answer (Please select your correct option)

Perimeter

Volume

correct

Area

Circumference

Made By: Waqar Siddhu

Question No : 18 of 26

Marks: 1 (Budgeted Time 1 Min)

For the double integral $\int_a^b \int_a^b f(x,y) dx dy$, order of integration does not matter provided that $f(x,y)$ is

Answer (Please select your correct option)

Bounded

Discontinuous

Defined

Continuous

Made By: Waqar Siddhu

Question No : 19 of 26

Marks: 1 (Budgeted Time 1 Min)

If $R = \{(x, y) : 0 \leq x \leq 2 \text{ and } -1 \leq y \leq 1\}$, then $\iint_R (x + 2y^2) dA = \dots\dots\dots$

Answer (Please select your correct option)

$\int_{-1}^1 \int_0^2 (x + 2y^2) dy dx$

$\int_0^2 \int_{-1}^1 (x + 2y^2) dx dy$

$\int_{-1}^1 \int_0^2 (x + 2y^2) dx dy$

correct

$\int_1^2 \int_{-1}^0 (x + 2y^2) dx dy$

Made By: Waqar Siddhu

Question No : 20 of 26

Marks: 1 (Budgeted Time 1 Min)

If $R = \{(x, y) : 0 \leq x \leq 4 \text{ and } 0 \leq y \leq 9\}$, then $\iint_R (3x - 4x\sqrt{xy}) dA = \dots\dots\dots$

Answer (Please select your correct option)

$\int_0^9 \int_0^4 (3x - 4x\sqrt{xy}) dy dx$

$\int_0^4 \int_0^9 (3x - 4x\sqrt{xy}) dx dy$

$\int_0^9 \int_0^0 (3x - 4x\sqrt{xy}) dx dy$

$\int_0^4 \int_0^9 (3x - 4x\sqrt{xy}) dy dx$

correct

Made By: Waqar Siddhu

Question No : 21 of 26

Marks: 2 (Budgeted Time 4 Min)

Given that $f_{xx} = -6x$, $f_{yy} = -6y$, $f_{xy} = 3$ for some $f(x,y)$. Check whether $f(x,y)$ has relative maximum, relative minimum or a saddle point at $P(1,1)$.

Answer ([Please click here to Add Answer](#))

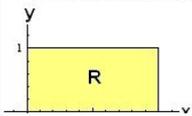
Normal Arial 12 B I U

Made By: Waqar Siddhu

Question No : 22 of 26

Marks: 2 (Budgeted Time 4 Min)

Let the function $f(x,y)$ is continuous in the region R, where R is a rectangle as shown below.



Answer (Please [click here to Add Answer](#))



Made By: Waqar Siddhu

Question No : 23 of 26

Marks: 3 (Budgeted Time 6 Min)

Let $y = 3x^2 - 5$. If x changes from 2 to 2.1, find the approximate change in the value of y using differential dy .

Answer (Please [click here](#) to Add Answer)



Made By: Waqar Siddhu

Question No : 24 of 26

Marks: 3 (Budgeted Time 6 Min)

If the order of integration for the integral $\int_0^1 \int_y^1 e^{x^2} dx dy$ is changed. Find the change in the limits of new integral.

Answer (Please [click here](#) to Add Answer)



Made By: Waqar Siddhu

Question No : 25 of 26

Marks: 5 (Budgeted Time 10 Min)

Find equation of normal line (in parametric form) to the surface $f(x, y, z) = xy + 2yz - xz^2 + 10$ at the point $(-5, 5, 1)$.

Answer ([Please click here to Add Answer](#))



Made By: Waqar Siddhu

Question No : 26 of 26

Marks: 5 (Budgeted Time 10 Min)

Evaluate $\int_1^4 \int_0^2 (6x^2 + 4xy^3) dx dy$

Answer (Please [click here](#) to Add Answer)

A rich text editor toolbar with various icons for text formatting, alignment, and editing. The toolbar includes options for bold, italic, underline, text color, background color, bulleted list, numbered list, link, unlink, and a zoom dropdown set to 100%.

Made By: Waqar Siddhu