8/10/2010

S.y. comp. div A&B.

Equation of line when two points are given Vector Integration Practice Problems

queries

Sem - TIT

	V_A & D	Sem-III
	V-A & B ne Integra	Questions
74	8,D1	
'' ,''	0,01	Find the work done of the moving particlal in the force filed $\overline{F} = 3x^2\hat{\imath} + (2xz - y)\hat{\jmath} + z\hat{k}$ along the line $(0,0)$ to $(2+2)$
2.4	9,D2	$z\hat{k}$ along the line $(0, 0, 0)$ to $(2, 1, 3)$ $x-x1/x2-x1 = y-y1/y2-y1 = z-z1/z2-z1 = say t$
4	9,02	β (a
		Evaluate $\int (3xy dx - y^2 dy)$ along the parabola $y = 2x^2$ from $A(0,0)$ to $B(1,2)$
		Evaluate $\int_{A}^{B} (3xy dx - y^2 dy)$ along the parabola $y = 2x^2$ from $A(0,0)$ to $B(1,2)$. What is the integral if the path is a stable $y = 2x^2$ and $y = 4x dx$
1 150	0,D3	the line path is a straight line joining A to B ?
3,30	0,D3	Find the work done in moving a particle in the force field $\overline{F} = 3xyi - 5zj + 10xk$
		along $x = t^2 + 1$, $y = 2t^2$, $z = t^3$ from $t = 1$ to $t = 2$. Just substitute values in terms
4,51	1,D4	Show that $\overline{F} = (2xyz^2)i + (x^2z^2 + z\cos yz)j + (2x^2yz + y\cos yz)k$ is
/hen field is		Conservative Find and $(2xyz)l + (x^2z^2 + z\cos yz)j + (2x^2yz + y\cos yz)k$ is
onservative		conservative. Find scalar potential ϕ such that $\overline{F} = \nabla \phi$ and hence, find the work done
on't integrate ubs limits	2,D5	by \overline{F} in displacing a particle from $(0,0,1)$ to $(1,\pi/4,2)$ along the straight line AB .
irectly		$\frac{1}{2} = \frac{1}{2} \frac{1}{2} + \frac{1}{2} \frac{1}{2} + \frac{1}{2} \frac{1}{2} \frac{1}{2} + \frac{1}{2} \frac{1}{2} \frac{1}{2} + \frac{1}{2} $
	1	scalar potential θ and evaluate $\int_{0}^{\infty} d\vec{r} d\vec{r} d\vec{r} = 1$
6,53	,	$1 - (0xy + 2)(1 + (3x^2 - z)) + (3xz^2 - y)/2$ he she for $z = 0$
7,54	Da	in moving a particle from (1,24) to (3,3,2). Same as 1
7,34	,2,	Prove that $F = 2xye^zi + x^2e^zj + x^2ye^zk$ is irrotational. Find scalar potential.
	,	that $\overline{F} = \nabla \phi$ and hence, find the work done by \overline{F} in displacing a particle from (2,1,1) to
		(2,0,1).
8,3 5,	,D8	Prove that $\overline{F} = 3x^2yi + (x^3 - 2yz^2)j + (3z^2 - 2y^2z)k$ is irrotational. Find scalar
	1	potential ϕ such that $\overline{F} = \nabla \phi$ and hence, find the work done by \overline{F} in displacing a particle
	f	from $(0,0,0)$ to $(1,1,1)$.
9,56,	$D9 \mid A$	A vector field is given by $\vec{E} = ()^2$
12.56	S	calar potential and also find the line integral from $(1,2)$ to $(2,1)$ Prove that $\overline{F} = (3x^2yz - 3y)i + (x^3z - 3x)j + (x^3y + 2z)k$ is irrotational. Find scalar potential ϕ such that $\overline{F} = \nabla \phi$ and hence find the
10,37	7, D10 F	Prove that $F = (3x^2yz - 3y)i + (x^3z - 3x)j + (x^3y + 2z)k$ is irrotational. Find
\smile	p	potential ϕ such that $\overline{F} = \nabla \phi$ and hence, find the work done by \overline{F} in displacing a particle from $(0,0,0)$ to $(1,1,1)$.
	fi	rom (0,0,0) to (1,1,1).
11,58	8, D11 F	Find scalar potential of $\overline{F} = (6xy^2 - 2z^3)i + (6x^2y + 2yz)j + (y^2 - 6z^2x)k$ if
	e	xists. Also find the work done by \overline{F} in displacing a partial f
12,59	, D12 E	xists. Also find the work done by \overline{F} in displacing a particle from $(1,0,2)$ to $(0,1,1)$.
		valuate $\int_{c} \bar{F} \cdot d\bar{r}$ along the arc of the curve $\bar{r} = (e^{t} \cos t)i + (e^{t} \sin t j)$ from (1,0) to $e^{2\pi}$, 0) where $\bar{F} = \frac{xi+yj}{(x^{2}+y^{2})^{3/2}}$.
12.60	, ,	(-21-2)2/2
13,60	1,95 Fi	ind the constants a, b, c such that $\overline{F} = (6xy + z^3)i + (3x^2 - z)j + (3xz^2 - y)k$ is a posservative field. Find its scalar potential and work does in
	(1	onservative field. Find its scalar potential and work done in moving a particle from $(3xz^2 - y)k$ is a (20) to $(11,-1)$.
14,61,	96 Pr	20) to (11,-1). To verthal and work done in moving a particle from the points $\int_{(1,2)}^{3,4} (6xy^2 - y^3) dx + (6x^2y - 3xy^2 dy)$ is independent of the path joining e points (1,2) and (3,4) and hence evaluate it.
	th	a points $(1,2)(6xy^2-y^3)dx + (6x^2y-3xy^2)dy$ is independent of the path joining
15,62,	97 Fi	e points (1,2) and (3,4) and hence evaluate it.
اردها ا		and the constant a so that $\overline{F} = (axy - z^3)i + (a - 2)x^2j + (1 - a)xz^2k$ is a conservative field. Find its scalar potential and $\overline{F} = (axy - z^3)i + (a - 2)x^2j + (a - a)xz^2k$ is a
	3)	inservative field. Find its scalar potential and work done in moving a particle from (1,2,- to (1,-4,2).
GREE	N'S Theor	Tem. State Const.
16.63.	98 r	Tem: State GREEN'S Theorem and hence evaluate the following integrals $(2x^2 - y^2) dx + (x^2 + y^2) dx = 4x + 4$
12,00,	Į	$(2x^2 - y^2)dx + (x^2 + y^2)dy$ where 'c' is the boundary of the surface enclosed by the
	11	es $x = 0$, $y = 0$, $x = 2$, $y = 2$.
1	un	$v_0 = v_1 v_2 = 0$

$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = x^{2}i - x y j \text{ \&`c' is the triangle having vertices (0,2),(2,0),(4,2).}$
$\int_{C} \left(\frac{1}{y} dx + \frac{1}{x} dy \right)$ where 'c' is the boundary of the region defined by
$x = 1, x = 4, y = 1, & y = \sqrt{x}$.
$\int_C (x^2 - y) dx + (2y^2 + x) dy$ around the boundary of the region defined by
$y = 4, & y = x^2$.
$\int_{c} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = -xy(x \ i - y \ j) \text{ and c is } r = a \ (1 + \cos\theta)$
The work done by $\overline{F} = (4x - 2y)i + (2x - 4y)j$ in moving a particle once counter clockwise around the circle $(x - 2)^2 + (y - 2)^2 = 4$
$\int_{c} (2x^{2} - y^{2})dx + (x^{2} + y^{2})dy$ around the boundary in the xy plane enclosed by the x-axis and the semi circle $y = \sqrt{1 - x^{2}}$.
$\int_{c} (3x^{2} - 8y^{2})dx + (4y - 6xy)dy \text{ where c is the region bounded by } y = \sqrt{x} \& y = x$
$\int_{c} (3x^{2} - 8y^{2})dx + (4y - 6xy)dy \text{ where c is the region bounded by } y = \sqrt{x} \& y = x^{2}$
$y = x^{2}$ $\int_{c} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = (x^{2} - xy)i + (x^{2} - y^{2})j \text{ and c is the region bounded by } x^{2} = 2y \& x = y$
$\int_{C} \left[(x^2 + y^2)i + (x^2 - y^2)j \right] \cdot d\overline{r} \text{ where 'c' is the boundary of the region enclosed by circles } x^2 + y^2 = 4, x^2 + y^2 = 16$
Circles $x + y = 4$, $x^2 + y^2 = 16$
$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = x^{2} i + x y j \text{ and } C \text{ is the boundary of the rectangle}$
x = 0, y = 0, x = a, y = b.
$\int_{C} (x y dx + x y^{2} dy)$ where C is the square in the xy-plane with vertices
(1,0), (0,1), (-1,0), and (0,-1)
heorem: State STOKE'S Theorem and hence evaluate the following integrals
$\int_{C} F \cdot d\overline{r} \text{ where } \overline{F} = y i + z j + x k \text{ and } C \text{ is the boundary of the surface}$
$x^2 + y^2 = 1 - z, z > 0.$
$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = (2x - y)i - yz^{2}j - y^{2}zk \text{ and C is the boundary of the}$
hemisphere $x^2 + y^2 + z^2 = a^2$ lying above the xy-plane.
$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = -xy i + 2yz j + y^{2} k \text{and C is the boundary of the sphere}$ $x^{2} + y^{2} + z^{2} = a^{2}, z = 0.$
$x^2 + y^2 + z^2 = a^2, z = 0.$

32,79,1	$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = (x+y)i + (y+z)j - x \text{ k and s is the surface of the plan}$
	2x + y + z = 2 in the first quadrant.
33,80,11	
	$\overline{F} = (2x - y + z)i + (x + y - z^2)j + (3x - 2y + 4z)k \text{ and s is the surface of the}$
	$\frac{y^2 - (2x - y + 2)t + (x + y - z)}{(x + y - z)} + (3x - 2y + 4z) $ and s is the surface of the
34,81,116	cylinder $x^2 + y^2 = 4$ bounded by the plane $z = 9$ and open at the other end.
	$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = (x^2 + y^2)i + 4xyj \text{ and } c \text{ is the boundary of the region bounded by}$
35,82,117	the parabola $y^2 = 4x$ and line $x = 4$.
,,	$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = (x+y)i + (2x-z)j + (y+z)k \text{ and c is the boundary of the triangle}$
36,83,118	cutoff by the plane $x + 2y + 3z = 6$ on the coordinate axes.
20,03,110	$\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = z^{2}i + x^{2}j + y^{2}k \text{ and C is the curved surface of the hemisphere}$
37,84,119	$x^2 + y^2 + z^2 = 100, z \ge 0$
37,04,119	Work done in moving a particle once around the perimeter of the triangle with vertices
	$(2,0,0), (0,3,0)$ and $(0,0,6)$ under the force $\overline{F} = (x+y)i + (2x-z)j + (y+z)k$
38,85,120	(2,0,0), (0,3,0) and (0,0,6) under the force $F = (x+y)i + (2x-z)j + (y+z)k$
38,85,120	$(2,0,0)$, $(0,3,0)$ and $(0,0,6)$ under the force $\overline{F} = (x+y)i + (2x-z)j + (y+z)k$ $\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane}$
	(2,0,0), (0,3,0) and (0,0,6) under the force $F = (x + y)i + (2x - z)j + (y + z)k$ $\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and } C \text{ is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$
GAUSS'S	(2,0,0), $(0,3,0)$ and $(0,0,6)$ under the force $F = (x+y)i + (2x-z)j + (y+z)k\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and } C \text{ is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane} DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate$
GAUSS'S i	(z,0,0), $(0,3,0)$ and $(0,0,6)$ under the force $F = (x+y)i + (2x-z)j + (y+z)k\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane} DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate$
GAUSS'S in the following 19,86,121	(2,0,0), (0,3,0) and (0,0,6) under the force $F = (x + y)i + (2x - z)j + (y + z)k$ $\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate ag $\iint_{S} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and S is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3.$
GAUSS'S 1 the followin 39,86,121	(z,0,0), $(0,3,0)$ and $(0,0,6)$ under the force $F=(x+y)i+(2x-z)j+(y+z)k\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane} DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate \overline{B} \iint_{S} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and S is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3. \iint_{S} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)i + (y^2 + 2z)k \text{ and S is the region}$
GAUSS'S 1 the followin 39,86,121	(2,0,0), (0,3,0) and (0,0,6) under the force $F = (x + y)i + (2x - z)j + (y + z)k$ $\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate and $\overline{F} = 4xi - 2y^2j + z^2k$ and S is the region bounded by $x^2 + y^2 = 4$, $z = 0$, $z = 3$. $\iint_{S} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k \text{ and S is the surface of the sphere with centre } (3,-14,-17) \text{ and radius } 3.$
GAUSS'S 1 the followin 39,86,121 10,87,122	(z,0,0), $(0,3,0)$ and $(0,0,6)$ under the force $F=(x+y)i+(2x-z)j+(y+z)k\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane} DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate \overline{B} \overline{B} \overline{B} \overline{B} \overline{B} \overline{B} where \overline{B} \overline{B} \overline{B} \overline{B} \overline{B} where \overline{B} B$
GAUSS'S 1 the followin 39,86,121 10,87,122 1,88,123 2,89,124	(z,0,0), $(0,3,0)$ and $(0,0,6)$ under the force $F = (x+y)i + (2x-z)j + (y+z)k\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane} DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate \frac{g}{g} \iint_{S} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and S is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3. \iint_{S} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k \text{ and S is the surface of the sphere with centre } (3,-14,-17) \text{ and radius } 3. \iint_{S} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xzi - y^2j + yzk \text{ and S is the surface of the cube bounded by the planes } x = 0, x = 1, y = 0, y = 1, z = 0, z = 1.$
GAUSS'S 1 the followin 39,86,121 10,87,122 1,88,123 2,89,124	(2,0,0), $(0,3,0)$ and $(0,0,6)$ under the force $F=(x+y)i+(2x-z)j+(y+z)k\int_{C} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane} DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate \int_{S} \overline{N} \cdot \overline{F} ds where \overline{F} = 4xi - 2y^2j + z^2k and S is the region bounded by x^2 + y^2 = 4x^2 + 2x^2 + 3x^2 +$
GAUSS'S 1 the followin 39,86,121 40,87,122 1,88,123 2,89,124 3,90,125	(2,0,0), (0,3,0) and (0,0,6) under the force $F = (x + y)i + (2x - z)j + (y + z)k$ $\int_{C} \overline{F} . d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and } C \text{ is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate \overline{B} $\int_{S} \overline{N} . \overline{F} ds \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and } S \text{ is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3.$ $\int_{S} \overline{N} . \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k \text{ and } S \text{ is the surface of the sphere with centre } (3,-14,-17) \text{ and radius } 3.$ $\int_{S} \overline{N} . \overline{F} ds \text{ where } \overline{F} = 4xzi - y^2j + yzk \text{ and } S \text{ is the surface of the cube bounded by the planes } x = 0, x = 1, y = 0, y = 1, z = 0, z = 1.$ $\int_{S} \overline{F} . d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and } S \text{ is the triangle } (1,0,0), (0,1,0) \text{ and } (0,0,1).$ $\int_{S} \overline{F} . d\overline{S} \text{ where } \overline{F} = x^3i + y^3j + z^3k \text{ and } S \text{ is the surface of the sphere } x^2 + y^2 + z^2 = 9.$
GAUSS'S 1 the followin 39,86,121 40,87,122 1,88,123 2,89,124 3,90,125	(2,0,0), (0,3,0) and (0,0,6) under the force $F = (x + y)i + (2x - z)j + (y + z)k$ $\int_{C} \overline{F} . d \overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate \overline{B} $\iint_{S} \overline{N}. \overline{F} ds \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and S is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3.$ $\iint_{S} \overline{N}. \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k \text{ and S is the surface of the sphere with centre (3,-14,-17) and radius 3.}$ $\iint_{S} \overline{N}. \overline{F} ds \text{ where } \overline{F} = 4xzi - y^2j + yzk \text{ and S is the surface of the cube bounded by the planes } x = 0, x = 1, y = 0, y = 1, z = 0, z = 1.$ $\iint_{S} \overline{F}. d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the triangle (1,0,0), (0,1,0) and (0,0,1).}$ $\iint_{S} \overline{F}. d\overline{S} \text{ where } \overline{F} = x^3i + y^3j + z^3k \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = 0.$ $\iint_{S} \overline{F}. d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = 0.$ $\iint_{S} \overline{F}. d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = 0.$ $\iint_{S} \overline{F}. d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = 0.$
GAUSS'S 1 the followin 39,86,121 10,87,122 1,88,123 2,89,124 3,90,125 ,91,126	$\int_{C}^{\infty} \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$ $\text{DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate}$ $\int_{S}^{\infty} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and S is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3.$ $\iint_{S}^{\infty} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k \text{ and S is the surface of the sphere with centre } (3,-14,-17) \text{ and radius } 3.$ $\iint_{S}^{\infty} \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xzi - y^2j + yzk \text{ and S is the surface of the cube bounded by the planes } x = 0, x = 1, y = 0, y = 1, z = 0, z = 1.$ $\iint_{S}^{\infty} \overline{F} \cdot d\overline{s} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the triangle } (1,0,0), (0,1,0) \text{ and } (0,0,1).$ $\iint_{S}^{\infty} \overline{F} \cdot d\overline{s} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = 0.$ $\iint_{S}^{\infty} \overline{F} \cdot d\overline{s} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = 0.$ $\iint_{S}^{\infty} \overline{F} \cdot d\overline{s} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the cylindrical surface bounded by } x^2 + y^2 + z^2 = 0.$
GAUSS'S 1 the followin 39,86,121 10,87,122 1,88,123 2,89,124 3,90,125 ,91,126	$(2,0,0)$, $(0,3,0)$ and $(0,0,6)$ under the force $F=(x+y)i+(2x-z)j+(y+z)k$ $\int \overline{F} \cdot d\overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1-x^2-y^2} \text{ in the xy plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate $\int_S \overline{N} \cdot \overline{F} ds$ where $\overline{F} = 4xi - 2y^2j + z^2k$ and S is the region bounded by $x^2 + y^2 = 4$, $z = 0$, $z = 3$. $\iint_S \overline{N} \cdot \overline{F} ds$ where $\overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k$ and S is the surface of the sphere with centre $(3,-14,-17)$ and radius 3. $\iint_S \overline{N} \cdot \overline{F} ds$ where $\overline{F} = 4xzi - y^2j + yzk$ and S is the surface of the cube bounded by the planes $x = 0$, $x = 1$, $y = 0$, $y = 1$, $z = 0$, $z = 1$. $\iint_S \overline{F} \cdot d\overline{S}$ where $\overline{F} = xi + yj + zk$ and S is the triangle $(1,0,0)$, $(0,1,0)$ and $(0,0,1)$. $\iint_S \overline{F} \cdot d\overline{S}$ where $\overline{F} = x^3i + y^3j + z^3k$ and S is the surface of the sphere $x^2 + y^2 + z^2 = 0$. $\iint_S \overline{F} \cdot d\overline{S}$ where $\overline{F} = x^3i + y^3j + z^3k$ and S is the surface of the sphere $x^2 + y^2 + z^2 = 0$. $\iint_S \overline{F} \cdot d\overline{S}$ where $\overline{F} = x^3i + y^3j + z^3k$ and S is the cylindrical surface bounded by $x^2 + y^2 = a^2$, $z = 0$, $z = h$. $\iint_S \overline{N} \cdot \overline{F} ds$ where $\overline{F} = 2x^2yi - y^2j + 4xz^2k$ and S is the region of first octant bounded by $y^2 + z^2 = 9$, $x = 2$.
GAUSS'S 1 the followin 39,86,121 10,87,122 1,88,123 2,89,124 3,90,125 ,91,126	$\int_{C} \overline{F} . d \overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the } xy \text{ plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate $\int_{C} \overline{f} . d \overline{r} \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and S is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3.$ $\iint_{S} \overline{N} . \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k \text{ and S is the surface of the sphere with centre } (3,-14,-17) \text{ and radius } 3.$ $\iint_{S} \overline{N} . \overline{F} ds \text{ where } \overline{F} = 4xzi - y^2j + yzk \text{ and S is the surface of the cube bounded by the planes } x = 0, x = 1, y = 0, y = 1, z = 0, z = 1.$ $\iint_{S} \overline{F} . d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the triangle } (1,0,0), (0,1,0) \text{ and } (0,0,1).$ $\iint_{S} \overline{F} . d\overline{S} \text{ where } \overline{F} = x^3i + y^3j + z^3k \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = y.$ $\iint_{S} \overline{F} . d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = y.$ $\iint_{S} \overline{F} . d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the cylindrical surface bounded by } x^2 + y^2 + z^2 = y.$ $\iint_{S} \overline{F} . d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the cylindrical surface bounded by } x^2 + y^2 + z^2 = y.$ By expressing $\iint_{S} (y^2z^2i + z^2x^2i + x^2y^2k) d\overline{S} \text{ as a surface of the sphere } x = x^2y^2i + x^2y^2k.$ By expressing $\iint_{S} (y^2z^2i + z^2x^2i + z^2x^2i + x^2y^2k) d\overline{S} \text{ as a surface of the sphere } x = x^2y^2i + x^2y^2k.$
GAUSS'S 1 the followin 39,86,121 40,87,122 1,88,123 2,89,124 3,90,125 ,91,126 ,92,127 93,128	[2,0,0), (0,3,0) and (0,0,6) under the force $F = (x + y)i + (2x - z)j + (y + z)k$ $\int_{C} \overline{F} . d \overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate $\int_{C} S_i N. \overline{F} ds$ where $\overline{F} = 4xi - 2y^2j + z^2k$ and S is the region bounded by $x^2 + y^2 = 4$, $z = 0$, $z = 3$. $\int_{C} S_i N. \overline{F} ds$ where $\overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k$ and S is the surface of the sphere with centre (3,-14,-17) and radius 3. $\int_{C} S_i N. \overline{F} ds$ where $\overline{F} = 4xzi - y^2j + yzk$ and S is the surface of the cube bounded by the planes $x = 0$, $x = 1$, $y = 0$, $y = 1$, $z = 0$, $z = 1$. $\int_{C} \overline{F} . d\overline{s}$ where $\overline{F} = xi + yj + zk$ and S is the triangle (1,0,0), (0,1,0) and (0,0,1). $\int_{C} \overline{F} . d\overline{s}$ where $\overline{F} = xi + yj + zk$ and S is the surface of the sphere $x^2 + y^2 + z^2 = 0$. $\int_{C} \overline{F} . d\overline{s}$ where $\overline{F} = xi + yj + zk$ and S is the surface of the sphere $x^2 + y^2 + z^2 = 0$. $\int_{C} \overline{F} . d\overline{s}$ where $\overline{F} = xi + yj + zk$ and S is the cylindrical surface bounded by $x^2 + y^2 = a^2$, $z = 0$, $z = h$ $\int_{C} \overline{F} . d\overline{s}$ where $\overline{F} = 2x^2yi - y^2j + 4xz^2k$ and S is the region of first octant bounded by $y^2 + z^2 = 9$, $x = 2$ By expressing $\int_{C} S_i (y^2z^2i + z^2x^2j + x^2y^2k) . d\overline{s}$ as volume integral and evaluate over the part of $x^2 + y^2 + z^2 = 1$ lying above the xy relates
GAUSS'S 1 the followin 39,86,121 40,87,122 11,88,123 2,89,124 3,90,125 1,91,126 1,92,127 93,128	(2,0,0), (0,3,0) and (0,0,6) under the force $F = (x + y)i + (2x - z)j + (y + z)k$ $\int \overline{F} \cdot d \overline{r} \text{ where } \overline{F} = zi + xj + yk \text{ and C is the boundary of the hemisphere } z = \sqrt{1 - x^2 - y^2} \text{ in the xy plane}$ DIVERGENCE Theorem: State GAUSS'S DIVERGENCE Theorem and hence evaluate $\iint_S \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xi - 2y^2j + z^2k \text{ and S is the region bounded by } x^2 + y^2 = 4, z = 0, z = 3.$ $\iint_S \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = (2x + 3z^2)i - (xz^2 + y)j + (y^2 + 2z)k \text{ and S is the surface of the sphere with centre } (3,-14,-17) \text{ and radius } 3.$ $\iint_S \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 4xzi - y^2j + yzk \text{ and S is the surface of the cube bounded by the planes } x = 0, x = 1, y = 0, y = 1, z = 0, z = 1.$ $\iint_S \overline{F} \cdot d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the triangle } (1,0,0), (0,1,0) \text{ and } (0,0,1).$ $\iint_S \overline{F} \cdot d\overline{S} \text{ where } \overline{F} = x^3i + y^3j + z^3k \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = \frac{1}{2}$ $\iint_S \overline{F} \cdot d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the surface of the sphere } x^2 + y^2 + z^2 = \frac{1}{2}$ $\iint_S \overline{F} \cdot d\overline{S} \text{ where } \overline{F} = xi + yj + zk \text{ and S is the cylindrical surface bounded by } x^2 + y^2 = a^2, z = 0, z = h$ $\iint_S \overline{N} \cdot \overline{F} ds \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} \text{ where } \overline{F} = 2x^2yi - y^2j + 4xz^2k \text{ and S is the region of S } \overline{S} \text{ where } \overline{F} \text{ where } \overline{F} \text{ where } \overline{F} \text{ where } \overline{F} \text{ where } \overline{S} \text{ where } \overline{F} \text{ where } \overline{S} \text$