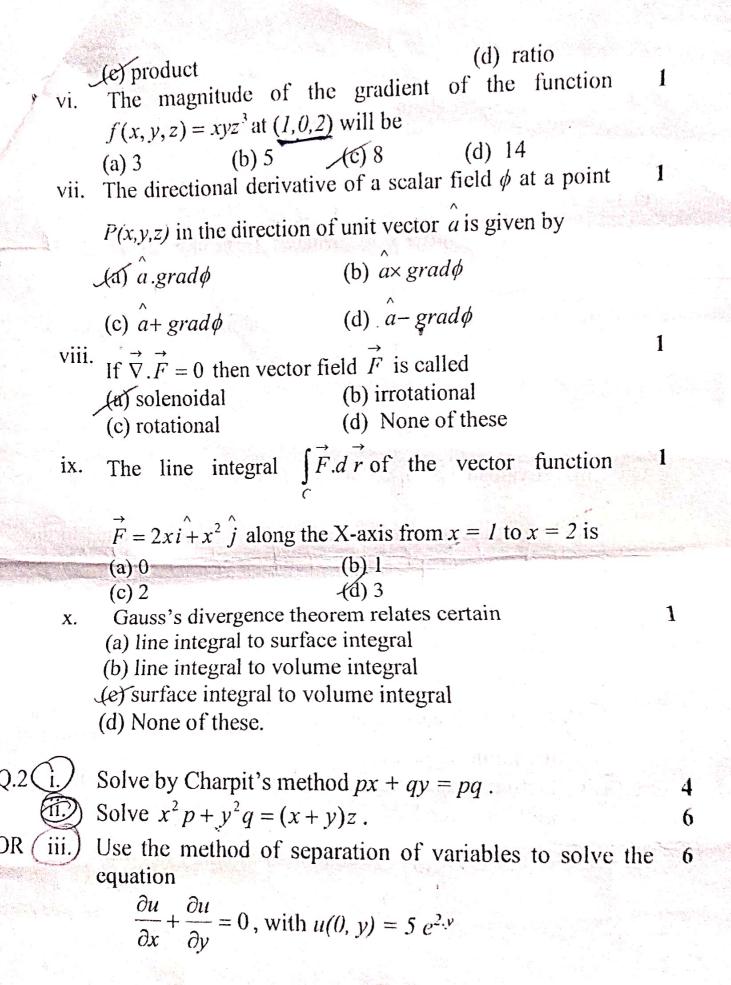


Enrollment No...

Faculty of Engineering

Mid Sem – II Examination May– 2022

EN3BS12 Engineering Mathematics –II		
Programme: B.Tech.		Branch/Specialisation: C Group
Duration	: 2 Hrs.	Maximum Marks: 40
Q.1 i.	Degree of the partial di	fferential equation $p^4 + 5qx^2 + z^5 = 1$
	0 is	
		(c) four (d) five
ii.		ange's linear partial differential 1
		involving a dependent variable z
	1	riables x and y , where P , Q , R are
	functions of x, y, z is	
	(a) $Pp + Qq = R$ (c) $Pp + Qq = Rr$	(b) $Pp - Qq = R$ (d) $Pp - Qq = Rr$.
iii		$z = px + qy + 2\sqrt{pq}$ will be
77.	[사고] [1]	$(b) z = x + y + 2\sqrt{ab}$
	(c) $z = ax + by$	(d) None of these.
I		nction of the differential equation 1
	r + s - 6t = 0 is (a) $f_1(y + 2x) + f_2(y + 1)$? r)
	$45) f_1(y - 3x) + f_2(y + 3x) + f_3(y + 3x$	
	(c) $f_1(y - 3x) + x f_2(y + x)$	그 그들은 그는 그는 사람들이 되었다. 그는 그들은
	(d) $f_1(y + 3x) + x f_2(y)$	
Ä		ion of variables for solution of 1
	partial differential e	quation, we assume that the
	dependent variable is	the of functions each of
	which contains only or	ne of the variables.
18 Ta 4	(a) sum	(b) difference



By using Green's theorem evaluate $\oint (xy + y^2)dx + x^2dy$, where C is the closed curve of the

(ji.)

region bounded by y = x and $y = x^2$. A particle moves along the curve $x = 2t^2$, $y = t^2 - 4t$, z = 3t - 5, where t is the time. Find the component of its velocity and acceleration at t = 1 in the direction $\hat{i} - 2\hat{j} + 3\hat{k}$.

OR iii. Evaluate $\iint_{S} \vec{F} \cdot \vec{n} \, ds$, where $\vec{F} = z \, \hat{i} + x \, \hat{j} - 3y^2 z \, \hat{k}$ and S is the surface of the cylinder $x^2 + y^2 = 16$ included in the first octant between z = 0 and z = 5.

Q.4 (2)

Form the partial differential equation by $2z = \frac{x^2}{a^2} + \frac{y^2}{b^2}$.

(ii.

Solve $r - 4s + 4t = e^{2x+y}$

Find a unit vector normal to the surface $x^2y + 2xz = 4$ at the point (2, -2, 3).

OR (iv)

Define irrotational vector point function. Is the fluid motion given by:

 $\vec{V} = (\sin y + z)\hat{i} + (x\cos y - z)\hat{j} + (x - y)\hat{k}$ irrotational or not?