

Government Engineering College-Bhuj

First Order Partial Differential Equations

Sr. No.	Content	Marks	Remarks
1	Form a partial differential equation for the equation $z = (x - 2)^2 + (y - 3)^2$	2	
2	Form a partial differential equation for the equation $z = ax + by + ct$.	2	
3	Form a partial differential equation for the equation $z = (x + a)(y + b)$	2	
4	Form a partial differential equation by eliminating the arbitrary functions from $z = f(x^2 - y^2)$.	3	
5	Form a partial differential equation by eliminating the arbitrary functions from $xyz = \phi(x + y + z)$	2	
6	Form a partial differential equation by eliminating the arbitrary functions from $z = f(x + ay) + \phi(x - ay)$.	2	
7	Form a partial differential equation by eliminating the arbitrary functions from $f(x^2 + y^2, z - xy) = 0$	3	
8	Solve $xp + yq = 3z$	3	
9	Find the general solution of the partial differential equation $xp + yq = x - y$	3	
10	Solve $(z - y)p + (x - z)q = y - x$	3	
11	Solve $x^2p + y^2q = z^3$	3	
12	Solve $(x^2 - y^2 - z^2)p + 2xyq = 2xz$	3	
13	Solve $y^2p - xyq = x(z - 2y)$	3	
14	Solve $(x^2 - yz)p + (y^2 - zx)q = z^2 - xy$	3	
15	Solve $p^2 + q^2 = 1$.		
16	Solve $p^2 + q^2 = npq$		
17	Solve $p(1 + q) = qz$		
18	Solve $p^3 + q^3 = 3pqz$		
19	Solve $pq = xy$		
20	Solve $p^{\frac{1}{3}} - q^{\frac{1}{3}} = 3x - 2y$		

21	Solve $z = px + qy + p^2 + q^2$		
22	Solve $z = px + qy - 2\sqrt{pq}$		
23	Solve $p = (z + qy)^2$		
24	Solve $z^2(p^2z^2 + q^2) = 1$		
25	Find the complete integral of $p^2 - y^2q = y^2 - x^2$		