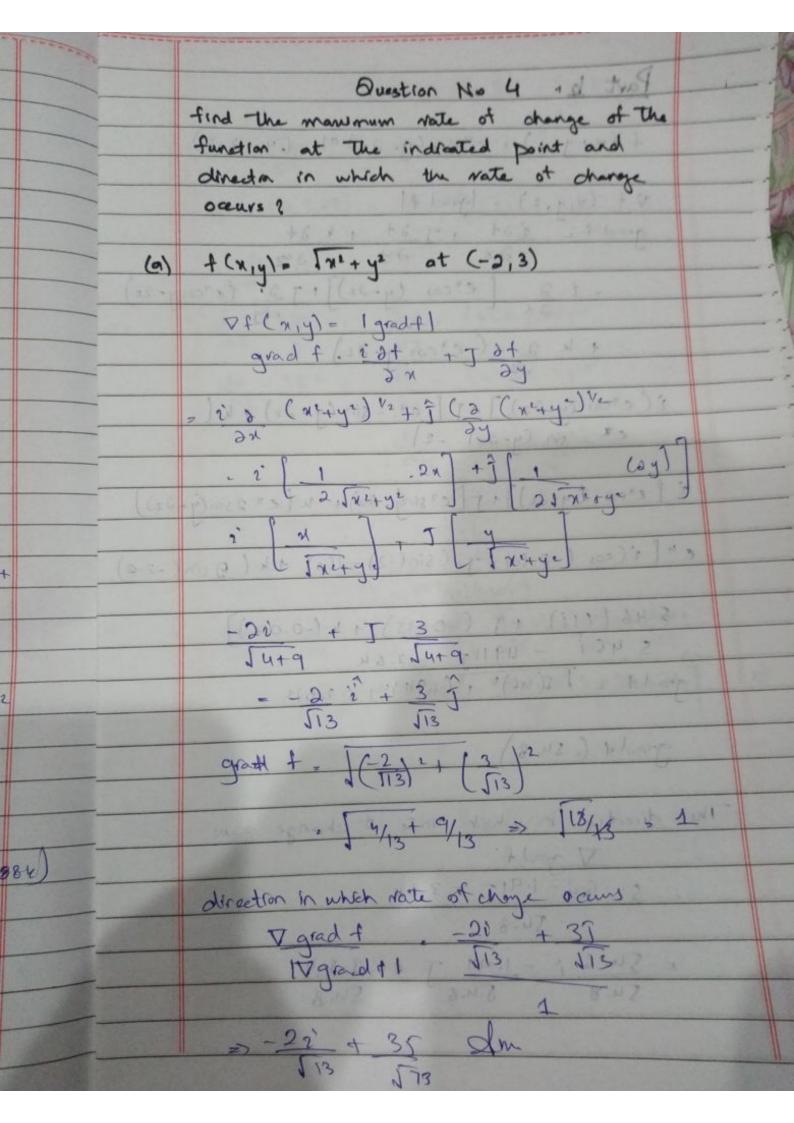
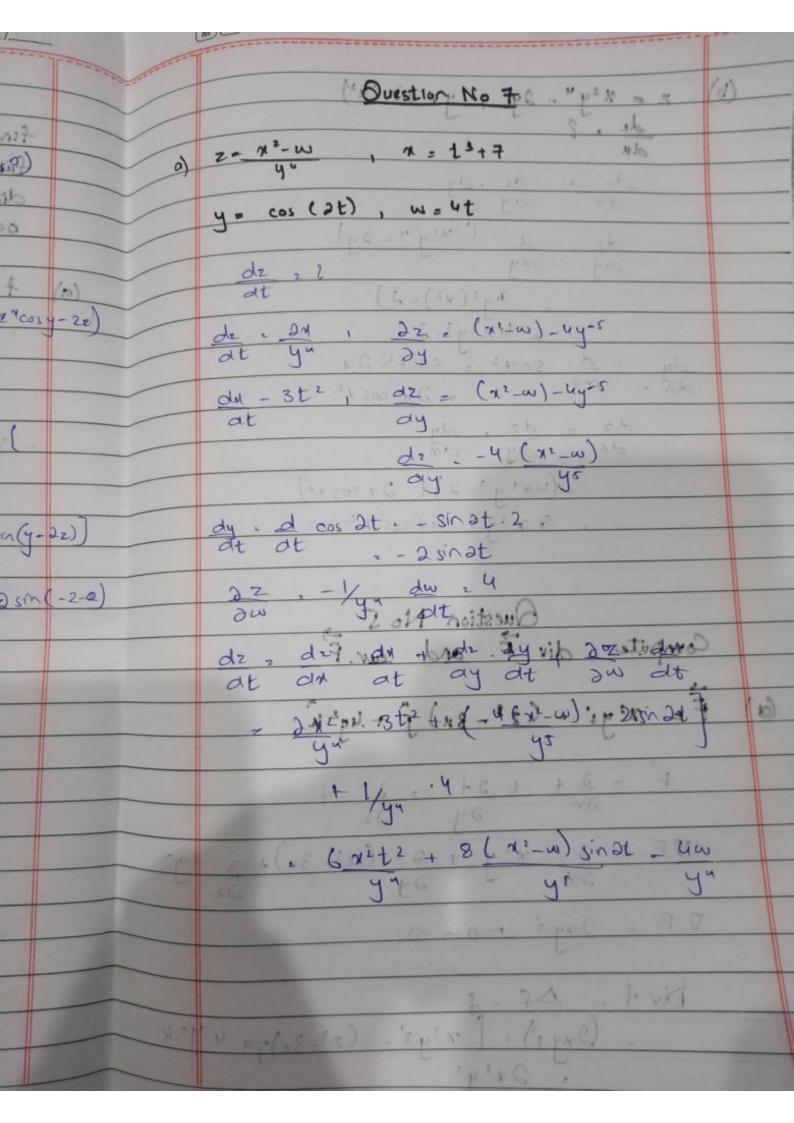
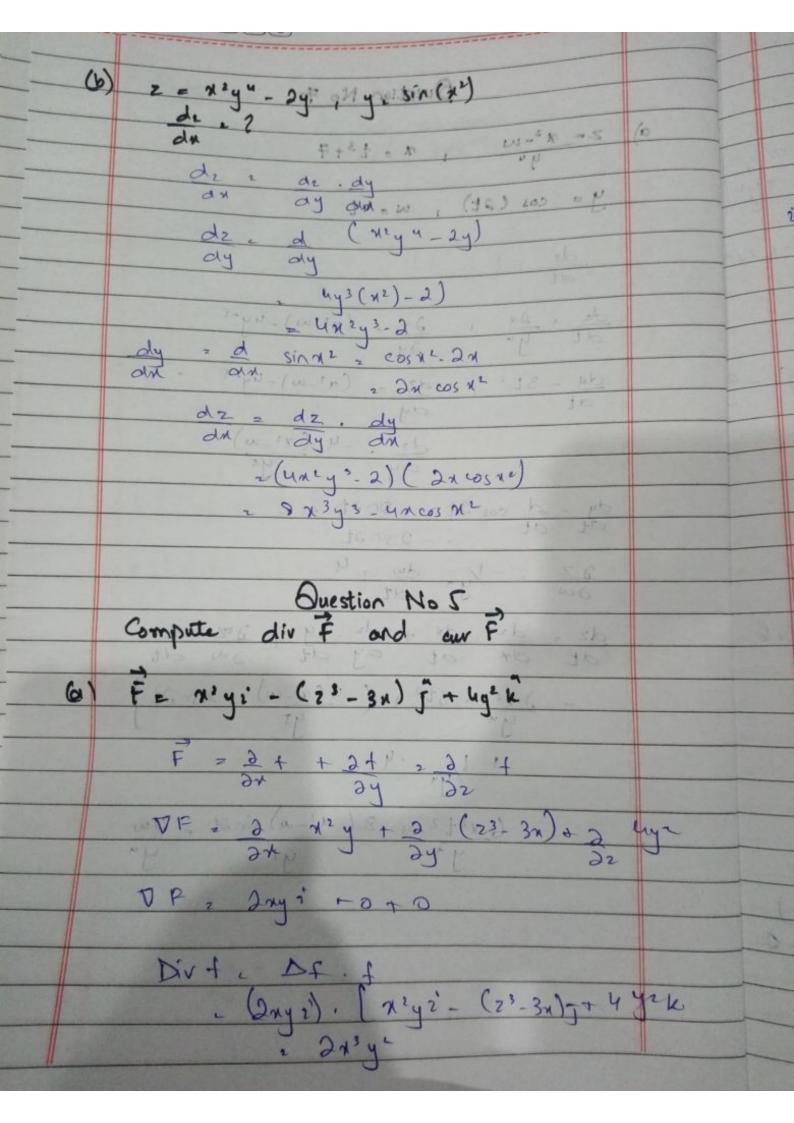


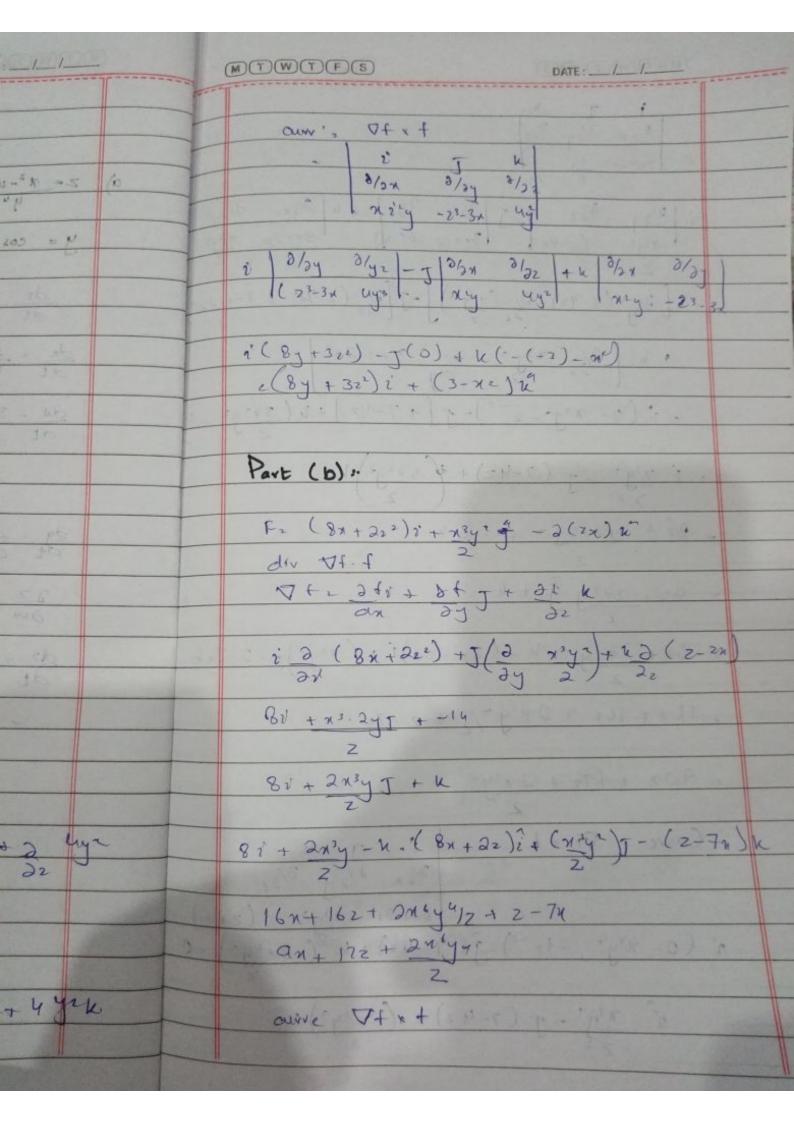
1(-1)2+(4)2+(2)2. grant of at (3,-1,0) gradt idt tydt that didnost = 5 9 MNAS 63x5+ 19 (MNAS (8xx) + û (d (4xyze3x2) i (uy2 e 3x2 + 4 ny2 e 3x2 , 3 z ) + j (4 x e 3x2 · 2y) + h (4xy2 e 3x2 , 3x i (44 e 3+2 + 12 x y 2 z e 3x1) + f (Bx e 2x2) + h (12x2y2 3x2  $e^{3(3)(0)} \left[ i \left( 4(-1)^{2} + 12(3) + (-1)^{2}(0) + (-1)^{2}(0) \right) \right]$   $= \left[ (8(3)(-1) + k(12(3)^{2}(-1)^{2}(-1)^{2} + (-1)^{2}(0) + (-1)^{2}(0) \right]$   $= \left[ (42) - 24 + 108 k \right]$  = 24i - 24j + 108 kOvestion No 3 directional identicatives dangeradific summeted 101-83, 10 150 (2) tour 1-24) (44-24-1084) (21, 1, 1, ) y to with with - Val [-4 - 96+ 216] · / (116) · 116/521

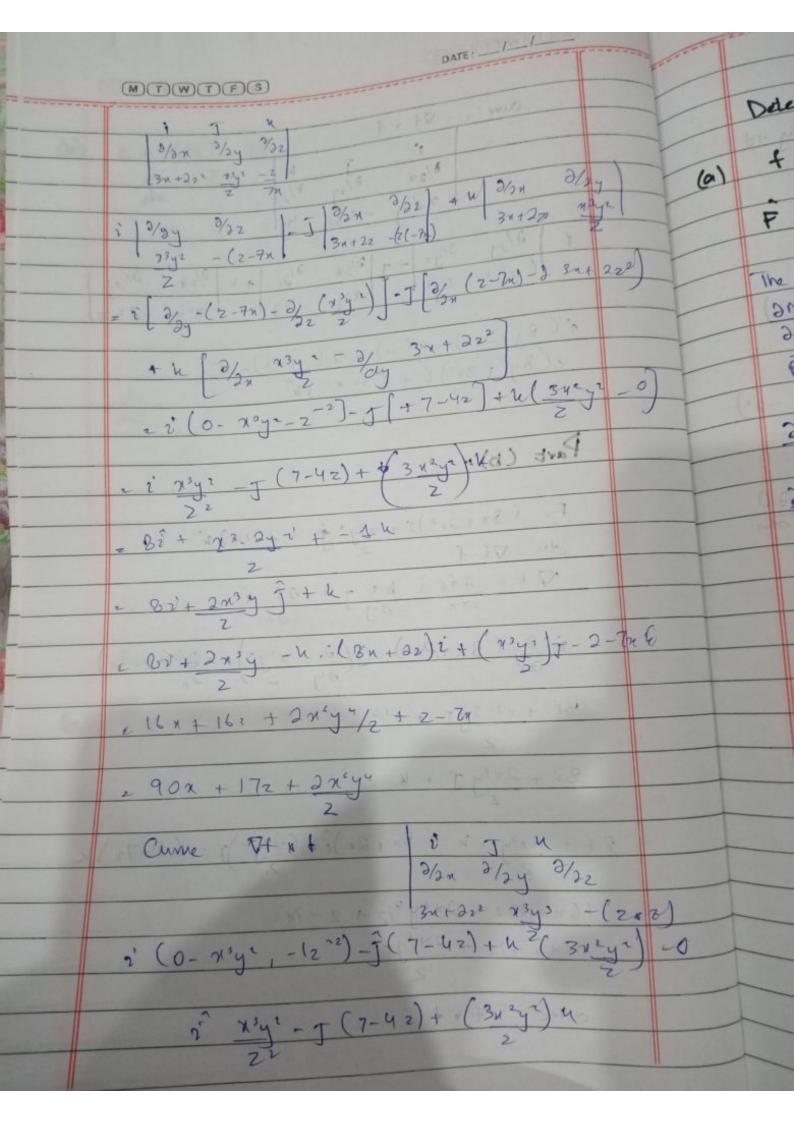


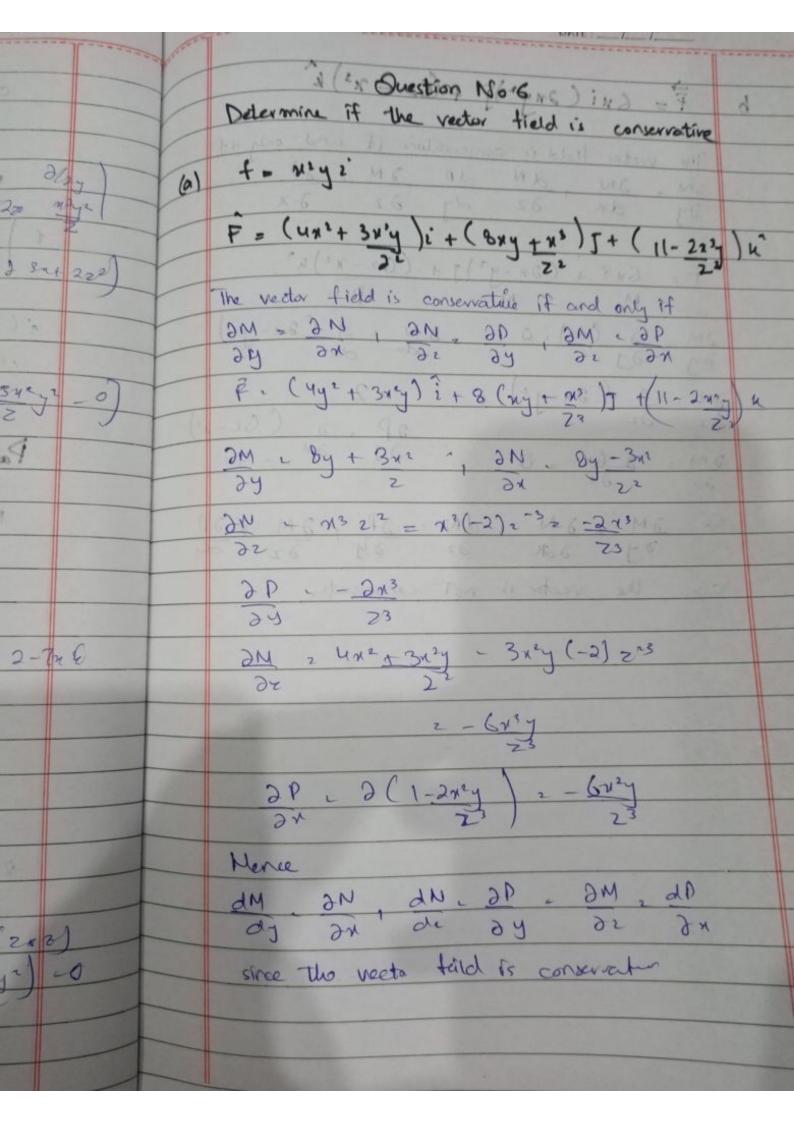
Part b. 1) all norther 10 find the manufacture of charge of the f. (m. ynx), = 10 mcon (y-2x) att. (4x+12x19) director in which the mate of drange Vf (x,y,z) = Igrad +1 sexuso grad + \_ i 2+ + + + + + + + + + + + (s) = 1 2 [e"cos (y-22)]+J2 (e"cosy-20) + h 2 (e'cos y-22) i (encos (y-22)]+ [ en. - sin (y-22) + k ( ex \_ sin (y-2x1 - -2) i lercos dy-22)]+ [ exsing-2m) + u (ex 2sin(y-22) eu[i(cos (-2 (0) + ) (sin(-2) -2(0) + k (gsm(-2-a) 5.46 ((1i) + J (-0.035) + h (-0.07)] 5.46 i - 4911 J - 3.84 gradt = T 5(.ue)2 + (11911)2+ (2.0)2 grad + ( 54.8) , , , , , , , , The direction in which mate at change occur Ju-60-1-915-3-84 34.8 C 2 54.6; -1.911 J # = 3-8 4"1 54.8 54.8











MTWTF(S) F= 6xi (2ny2) + (62 - x3) x Determine if the vector Held is conservating b The vector field is conservature if and only of DM DN dN do DM 11810 ... DY dx F = (4x2+344) + + (6x4+x3) ++ (11-2x2 F= Gxi + (2n-y2) J + (G2-xe) n2 to Mo boot Numbers of IPit where on an a control an an 2N 2 2 (2n-y2). 20 1 22 2P 2 (G2-22) 2M 2 261 2016 so 2M & 2N , dN = 2P, 2M & 2D since the vector is not conservating 16 50 (C-) 4, x & - 1, x x 4 (-5) 5 2