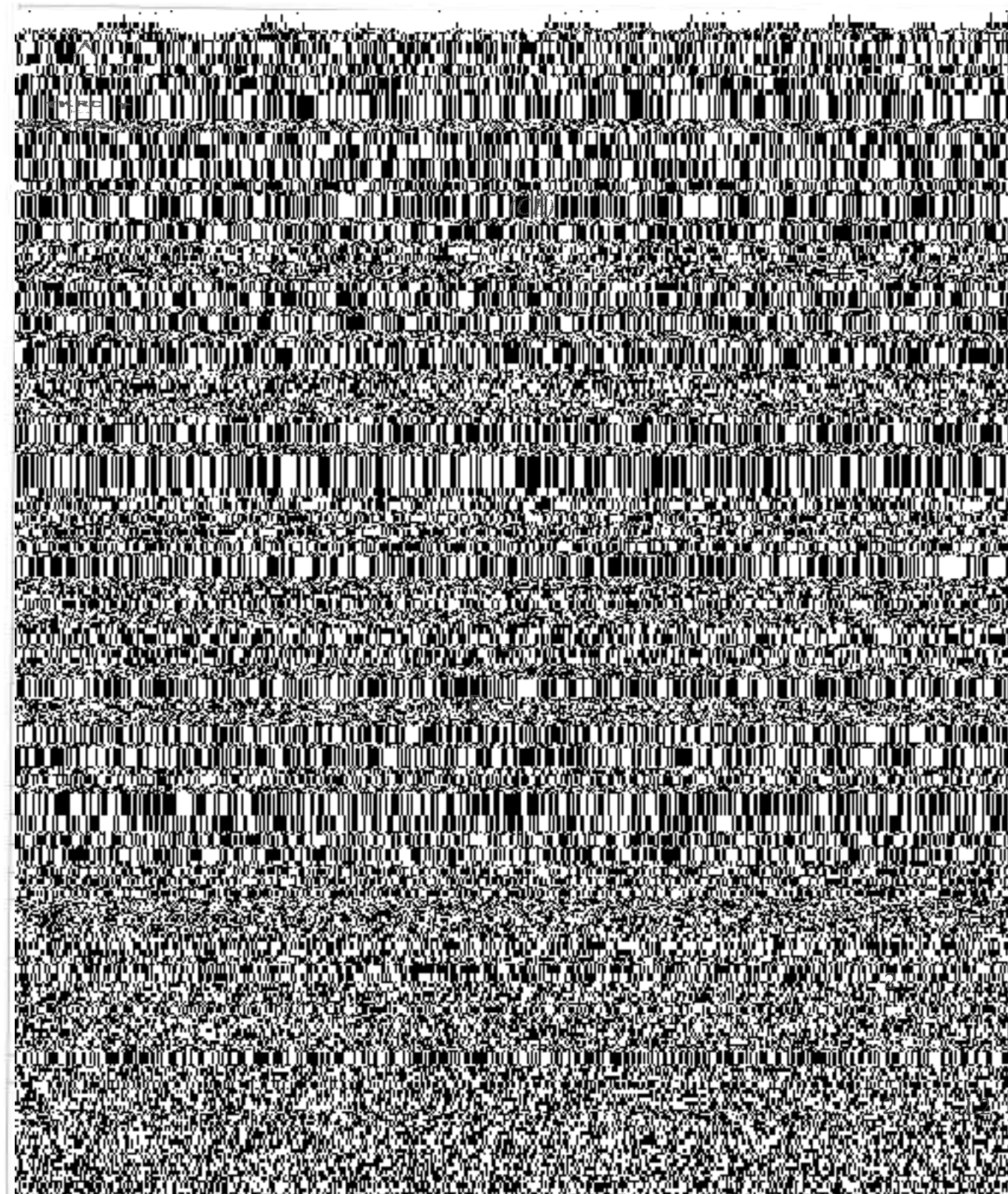




15	Find the first and second derivatives of the function tabulated below at the point $x=1.5$	10M	3	L2												
	<table><tr><td>t</td><td>1</td><td>1.1</td><td>1.2</td><td>1.3</td><td>1.4</td></tr><tr><td>v</td><td>43.1</td><td>47.7</td><td>52.1</td><td>56.4</td><td>60.8</td></tr></table>	t	1	1.1	1.2	1.3	1.4	v	43.1	47.7	52.1	56.4	60.8			
t	1	1.1	1.2	1.3	1.4											
v	43.1	47.7	52.1	56.4	60.8											
	OR															
16	Evaluate $\int_0^1 \sqrt{1+x^4} dx$ by using Simpson's 3/8 rule.	10M	3	L2												
17	Given $\frac{dy}{dx} = y^2 + 3x, y(0) = 1$ Find $y(0.1)$ taking $h = 0.1$ by using Taylor's series method.	10M	4	L2												
	OR															
18	Apply 4th order Runge-Kutta method to find $y(0.1)$ given $y' = xy, y(0)=1$.	10M	4	L2												
19	Solve the equation $\frac{\partial u}{\partial t} = \frac{\partial^2 u}{\partial x^2}$, subject to the initial condition $u(x,0) = \sin \pi x, 0 \leq x \leq 1$ and the boundary conditions $u(0,t) = 0, u(1,t) = 0$. Carry out computations for the two levels taking $h=1/3, k=1/36$.	10M	5	L2												
	OR															
20	Evaluate the pivotal values of the equation $u_t = 16u_{xx}$, taking $h=1$ upto $t=1.25$. The boundary conditions are $u(0,t)=u(5,t)=0, u_i(x,0)=0$ and $u(x,0)=x^2(5-x)$.	10M	5	L2												