CHAPTER :FIRST ORDER DIFFERENTIAL EQUATION

(1)	Find order & Degree : $(i)\ \frac{d^2y}{dx^2} = \left[y + \left(\frac{dy}{dx}\right)^2\right]^{\frac{1}{4}}$ $(ii)\ \left[\frac{dy}{dx} + y\right]^{\frac{1}{2}} = \sin x$ $(iii)\ \left[\frac{dx}{dy}\right]^2 + 5y^{\frac{1}{3}} = x$
	FIND THE SOLUTION OF FOLLOWING DIFFERENTIAL EQUATION
(2)	$(1 + x)y\,dx + (1 - y)x dy = 0$
(3)	$\frac{dy}{dx} = e^{2x+3y}$
(4)	$xy' + y = 0\,; y(2) = -2$
(5)	$tany\,\frac{dy}{dx} = sin(x + y) + sin(x - y)$
(6)	$9yy' + 4x = 0$
(7)	$xy' = y^2 + y$
(8)	$xy\frac{dy}{dx} = 1 + x + y + xy$
(9)	$3e^x tany\,dx + (1 - e^x)sec^2y\,dy = 0$
(10)	$-yx^{-2}dx + x^{-1}dy = 0$
(11)	$xdy - ydx = \sqrt{x^2 + y^2}$
(12)	$e^{3\theta}(dr + 3rd\theta) = 0$
(13)	$(x + y)^2\,\frac{dy}{dx} = a^2$
(14)	$\frac{dy}{dx} = sin(x + y)$
(15)	$1 + \frac{dy}{dx} = e^{x+y}$
(16)	$\left(1 + e^{\frac{x}{y}}\right)dx + e^{\frac{x}{y}}\left(1 - \frac{x}{y}\right)dy = 0$
(17)	$(x^3 + 3xy^2)dx + (y^3 + 3x^2y)dy = 0$
(18)	$(x^2 + y^2)dx - 2xy\,dy = 0$

(19)	$2xydx + x^2dy = 0$
(20)	$\frac{dy}{dx} = \frac{y}{x} + tan\frac{y}{x}$
(21)	$x\frac{dy}{dx} = y + x\,e^{\frac{y}{x}}$
(22)	$\frac{dy}{dx} + \frac{1}{x} = \frac{e^y}{x^2}$
(23)	$x + y\frac{dy}{dx} = 2y$
(24)	$\frac{dy}{dx} + 2xy = e^{-x^2}$
(25)	$\frac{dy}{dx} + y\cot x = 2\cos x$
(26)	$\frac{dy}{dx} + \frac{2y}{x} = \sin x$
(27)	$\frac{dy}{dx} + 2y\,tanx = sinx$
(28)	$\frac{dy}{dx} - y = e^{2x}$
(29)	$y' + y\ sin\,x = e^{cos\,x}$
(30)	$\frac{dy}{dx} + y = x$
FIND THE ORTHOGONAL TRAJECTORIES OF THE FOLLOWING CURVES	
(31)	$x^2 + y^2 = c^2$
(32)	$x^2 + (y-b)^2 = b^2$
(33)	$x^2 = 4b(y+b)$
(34)	$y = c\,e^{-x}$
(35)	$r = a(1+\cos\theta)$
(36)	$r = a\theta$
(37)	$r^2 = a^2\ sin\,2\theta$