Q1	If p and q are the degree and order of the differential equation $\left(\frac{d^2y}{d^2x}\right)^2 + 4\frac{dy}{dx} + \frac{d^3y}{d^3x} = 2$, then the value of 2p-3q is (a) 7 (b) -7 (c) 3 (d) -3
Q2	What is the degree of the differential equation $y\left(\frac{d^2y}{d^2x}\right)^3 + x\left(\frac{dy}{dx}\right)^4 + y^5 = 0$ (a) 6 (b) 4 (c) 5 (d) 3
Q3	The order and degree of the differential equation $\left(\frac{dy}{dx}\right)^2 + 4\frac{d^2y}{d^2x} + 5 = 0$ is (a) order 1 and degree 2 (b) order 2 and degree 2 (c) order 2 and degree 1 (d) order 1 and degree 1
Q4	The Integrating Factor of the differential equation $\frac{dy}{dx} - \frac{y}{x} = 2x^2$ is (a) x^2 (b) x (c) $-\frac{1}{x}$ (d) $\frac{1}{x}$
Q 5	In the following question, a statement of assertion(A) is followed by a statement of reason(R). Choose the correct answer out of the following choices: (a) Both A and R are true and R is the correct explanation of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true. **Assertion (A):** The general solution of the differential equation $x\frac{dy}{dx} + 2y = x^2$ is given by $y = \frac{x^2}{4} + cx^{-2}$ **Reason (R):** The general solution of linear differential equation is given by $y(I.F.) = \int\{(I.F.) \times Q\}dx + c$
Note:	To solve Q 6 to 10 a separate sheet may be used and attached.
Q 6	Write the Degree and Order of the differential equation $\frac{d^2y}{dx^2} + sin\left(\frac{dy}{dx}\right) = 5$.
Q 7	Solve the initial value problem $\cos\left(\frac{dy}{dx}\right) = k$, given that y=1 when x=0
Q 8	Find the particular solution of the differential equation $x\frac{dy}{dx} - y + x\ sin\left(\frac{x}{y}\right) = 0$ given that when x=2, y=π.
Q 9	Verify that $y = 3\cos(logx) + 4\sin(logx)$ is a solution of the differential equation $x^2\frac{d^2y}{dx^2} + x\left(\frac{dy}{dx}\right) + y = 0$
Q 10	Solve the differential equation $(y - \sin^2 x)dx + tanx\ dy = 0$
	SPACE For Rough Work: