	BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA **Class XII (Mathematics)**
Sol 1.	(c)
2.	(b)
3.	(d)
4.	(d)
5.	$5x + 3 = \lambda(\frac{d}{dx}(x^2 + 4x + 10)) + \mu$ $5x + 3 = \lambda(2x + 4) + \mu$
6.	$I = \int e^x \left(\frac{1-\sin x}{1-\cos x}\right) dx = \int e^x \left(\frac{1-\sin x}{2\sin^2\frac{x}{2}}\right) dx = \int e^x \left(\frac{1}{2\sin^2\frac{x}{2}} - \frac{2\sin(x/2)\cos(x/2)}{2\sin^2\frac{x}{2}}\right)$ $= \int e^x \left(\frac{1}{2}\cos ec^2\left(\frac{x}{2}\right) - \cot\left(\frac{x}{2}\right)\right) d = e^x \cot(x/2) +$
7.	I= $\int \frac{x^7 dx}{x^8(x^8+1)}$ Put x^8 =t $\Longrightarrow$ $8x^7\,dx = dt$ $\Longrightarrow x^7\,dx = dt/8$ so I = $\frac{1}{8}\int \frac{dt}{t(t+1)}$
8.	I=$\int_0^{\pi} \frac{(\pi-x)\tan(\pi-x)}{\sec(\pi-x)+\tan(\pi-x)} dx$
9.	Use property $\int_a^b f(x)dx = \int_a^b f(a+b-x)dx$, $I = \int_{-2}^{2} \frac{x^2}{1+5^{-x}} dx$
10.	$\int_0^{\frac{\pi}{2}} \frac{x+\sin x}{1+\cos x} dx = \int_0^{\frac{\pi}{2}} \frac{x+2\sin\frac{x}{2}\cos\frac{x}{2}}{2\cos^2\frac{x}{2}} dx$