JAYAM TUITION CENTRE.

VETTAVALAM. TIRUVANNAMALAI-DT.

STD: 12
SUB: MATHS
MARKS: 25

EXERCISE TEST - 15 (EX:10-5)

2Mark Questions ***5 X 2 =10***

1. Solve the following differential equations: $\frac{dy}{dx} = \sqrt{\frac{1-y^2}{1-x^2}}$
2. Solve the following differential equations: $ydx + (1+x^2)\,tan^{-1}x\;dy = 0$
3. Solve the following differential equations: $x\,cos\,y\;dy = e^x(x\,log\,x + 1)dx$
4. Solve the following differential equations: $\frac{dy}{dx} - x\sqrt{25-x^2} = 0$
5. Solve $(1+x^2)\frac{dy}{dx} = 1 + y^2$.

5 Mark Questions ***3 X 5 =15***

6. If F is the constant force generated by the motor of an automobile of mass M, its velocity v is given by $M\frac{dv}{dt} = F - kv$, where k is a constant. Express v in terms of t given that $v = 0$ when $t = 0$.
7. The velocity v, of a parachute falling vertically satisfies the equation $v\frac{dv}{dx} = g\left(1 - \frac{v^2}{k^2}\right)$, where g and k are constants. If v and x are both initially zero, find v in terms of x.
8. Solve : $\frac{dy}{dx} = \sqrt{4x + 2y - 1}$.