

**I B.Pharmacy II Semester Supplemenraty Examinations, Feb/Mar 2014
MATHEMATICS-II****Time: 3 hours****Max Marks: 75****Answer any FIVE Questions
All Questions carry equal marks**

1. (a) Find the derivative of $\sin x (\tan x)^2$.
(b) Show that the maximum value of $x \log x$ is $-\frac{1}{e}$
2. (a) If $y = \cos^5 x \cos(x^2)$ find $\frac{dy}{dx}$
(b) Find the derivative of $y = \sin^3 x$
3. (a) Evolute $\int \frac{(1+x)e^x}{\sin^2(xe^2)} dx$
(b) Find the area between the curves $y^2=4x$ and $x=2y$
4. (a) Evolute $\int e^{2\log x} dx dx$
(b) Evolute $\int_0^\pi \frac{1}{1+\cos x} dx$
5. (a) Form a differential equation to represent the family of curves $y = Ae^x + Be^{-2x}$
(b) solve $[1-x] dy + (1-y) dx = 0$
6. (a) solve $(x e^{xy} + 2y) \frac{dy}{dx} + y e^{xy} = 0$
(b) solve $x \cos x \frac{dy}{dx} + (x \sin x + \cos x) y = 1$
7. (a) Find L $[\cos^2 t]$
(b) Find L $[\sin^2 at]$
8. (a) Find L $[\frac{e^{-a} t - 1}{a}]$
(b) Find L $[(\sin t + \cos t)^2]$
