

I B.Pharmacy II Semester Regular Examinations, Oct/Nov 2013
MATHEMATICS-II
Time: 3 hours**Max Marks: 75**
Answer any FIVE Questions
All Questions carry equal marks

1. (a) Find the derivative of $x = \log(1 + \sqrt{y})$
 (b) Find the maximum of the $3\cos x + \sqrt{3}\sin x$, $0 < x < \pi$
2. (a) Find the derivative of $y = \sin^2(\cos 3x)$
 (b) If $u = \log(x^2 + y^2)$ find $\frac{\partial u}{\partial x}$, $\frac{\partial u}{\partial y}$
3. (a) Find $\int (\sin x + x^3) dx$
 (b) Find the area enclosed between the curves $y^2 = 4x$ and the line $y = 2x - 4$.
4. (a) Evaluate $\int \frac{dx}{1 + \cot x}$
 (b) Find the area between the curves $x^2 = 4y$ and $x = 4y - 2$
5. (a) Form the differential equation from the relation $y = e^x [A \cos x + B \sin x]$ when A, B are arbitrary constants
 (b) solve $[1 + e^{x/y}] dx + e^{x/y} [1 - \frac{x}{y}] dy = 0$
6. (a) Solve $(x + y)^2 \frac{dy}{dx} = a^2$
 (b) Solve $\frac{dy}{dx} = \frac{y}{x + \sqrt{xy}}$
7. (a) Find L [$\sin 2t \cos 3t$]
 (b) Find L [$\frac{1}{\sqrt{t\pi}}$]
8. (a) Find L [$\cos^3 3t$]
 (b) Find L [$\sin^3 2t$]
