

**I B.Pharmacy II Semester Supplementary Examinations, Feb. 2015
MATHEMATICS-II****Time: 3 hours****Max Marks: 75****Answer any FIVE Questions
All Questions carry equal marks**

1. (a) If $y = \sec x$, $x \in R - \{(2n + 1) \frac{\pi}{2} : n \in Z\}$ then prove that $\frac{dy}{dx} = \sec x \tan x$
 (b) Find the maxima and minima of the function $f(x) = \frac{\log x}{x}$ [7+8]
2. (a) Find the derivative of $y = \operatorname{cosec}(x^5)$
 (b) Find the derivative of $y = \log \sqrt{\tan x}$ [7+8]
3. (a) Find $\int \frac{1+\cos^2 x}{1-\cos 2x} dx$
 (b) Find the area bounded by the curve $xy=16$, the x-axis and the ordinates $x=4$, $x=8$. [7+8]
4. (a) Evaluate $\int e^{ax} \cos bx dx$
 (b) Find the area between the ellipse $\frac{x^2}{9} + \frac{y^2}{16}$ and the line $\frac{x}{5} + \frac{y}{4} = 1$ [7+8]
5. (a) Eliminate C from the equation $y = Ce^{\sin^{-1} x}$
 (b) solve $xy^1 + y + 4 = 0$ [7+8]
6. (a) Solve $\frac{dy}{dx} - x \tan(y - x) = 1$
 (b) Solve $(x^2 - 2xy + 3y^2) dx + (y^2 + 6xy - x^2) dy = 0$ [7+8]
7. (a) Find L [$\cosh^2(2t)$]
 (b) Find L [$\sinh at - \sin at$] [7+8]
8. (a) Find L [$(t + 3)^2 e^t$]
 (b) Find L [$e^{-t} \cos^2 t$] [7+8]
