

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

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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 [  $\sin^3 2t$  ]

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