Code No. 6035 / S

FACULTY OF PHARMACY

B. Pharmacy I – Year (Supplementary) Examination, November 2015

Subject: Mathematics

Time: 3 Hours **Max.Marks: 70**

Note: Answer All questions. All questions carry equal marks.

1 a) If $\log x = \log 3 + 2 \log 4 - \frac{3}{4} \log 16$, then find the value of x.

b) If $\cos \theta = \frac{5}{13}$; $0 < \theta < \frac{®}{2}$, then find the value of $\frac{\cos \theta + 5 \cot \theta}{\text{cosec } \theta - \cos \theta}$.

OR

c) If $0 \le \theta \le \frac{®}{2}$ be such that $\tan \theta = \frac{5}{12}$ then find $\frac{\sin \theta + \cos \theta - \cot \theta}{\text{cosec } \theta - \sec \theta + \tan \theta}$.

d) If $a = \log_{24}^{12}$, $b = \log_{36}^{24}$ and $c = \log_{48}^{36}$, then show that abc = -1.

2 a) Find $\lim_{x \to a} \frac{\sin (x - a)}{x^5 - a^5}$.

b) If $u = x^2y^3$, $x = \log t$, $y = e^t$ then find $\frac{du}{dt}$ in terms of t.

OR

c) If $u = \sin^{-1}\left(\frac{x+y}{\sqrt{x} + \sqrt{y}}\right)$, then prove that $x\frac{du}{dx} + y\frac{du}{dy} = \frac{1}{2}\tan u$.

d) Find $\lim_{\theta \to 0} \frac{1 - \cos \theta}{\theta^2}$.

3 a) Find $\int \frac{1}{2 + 3\sin x} dx$.

b) Evaluate $\int \cos^3 x \sin x \, dx$.

OR

c) Evaluate $\int \frac{\tan x}{1 + \cos^2 x} dx$.

d) Show that the area of a loop of the curve $x^4 = a^2 (x^2 - y^2)$ is $\frac{2a^2}{3}$.

…2.

4 a) Find the values of the determinant $\begin{vmatrix} 1+b+2c & a & b \\ c & b+c+2a & b \\ c & a & c+a+2b \end{vmatrix}$.

b) Solve the system of equation's x+y+z = 1, x+2y+2z = 3, x+2y+3z = 4 by matrix inversion method.

OR

c) Find the value of x if $\begin{vmatrix} 2-x & 3 & 3 \\ 3 & 4-x & 5 \\ 3 & 5 & 4-x \end{vmatrix} = 0$.

d) Define symmetric and show symmetric matrix.

If $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ -3 & 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 2 \\ 1 & 2 & 0 \end{bmatrix}$ find BA.

5 a) Write about linear and non-linear graphs.

OR

b) Find the equation of a circle passing through the points (2,3), (0,4) and (5,6).

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