

!|||||N 11111|||||

Code No. : **4404**

FACULTY OF PHARMACY

B. Pharmacy I Year (Supplementary) Examination, Nov./Dec. 2010

MATHEMATICS

Time : 3 Hours]

[Max. Marks : 70

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

1. a) If $\log_y [1 + \log_b [+ \log_c x]] = 0$, find x.

b) If $\sin a = \frac{4}{5}$ and a, p are acute then find a + i3

OR

c) Prove that $\sin A \sin \left(\frac{A}{3} + A \sin \frac{A}{3} \right) = \frac{1}{4} \sin 3A$. Hence show that

$$\sin \frac{27t}{9} \sin \frac{37t}{9} \sin \frac{4e3}{9} = 1.6$$

d) If $x = 1 + \log_a bc$, $y = 1 + \log_b ca$, and $z = 1 + \log_c ab$, prove that $xyz = xy + yz + zx$

2. a) Show that $\lim_{x \rightarrow 1} \frac{x^2 - 1}{2x^2 - 7x + 1} = \frac{1}{3}$.

b) Find the maximum and minimum values of $f(x) = x^3 + \frac{3}{x}$

OR

c) If $u = \frac{x}{y} \frac{y}{z} \frac{z}{x}$, show that $x \frac{u}{ax} + y \frac{u}{ay} + z \frac{u}{az} = 0$.

d) Prove that $x^3 - 3x^2 + 3x + 7 = 0$, has neither maximum nor minima.



Code No. : 4404

3. a) Evaluate $\int \frac{1}{x(1+\log x)} dx$

b) Evaluate $\int \frac{x^x}{(1+x)^2} dx$

OR

c) Evaluate $\int \frac{\sin x}{x + \cos x} dx$

d) Evaluate $\int \frac{\sin x \cos x}{1 + \sin^4 x} dx$

4. a) Define Rank of the matrix and hence find the rank of the matrix,

$$A = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 2 & 4 & 6 & 8 \\ 3 & 6 & 9 & 12 \end{bmatrix}$$

b) Solve the system of equations

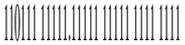
$$2x - y + 8z = 13; 3x + 4y + 5z = 18 \text{ and } 5x - 2y + 7z = 20 \text{ by Gaussian}$$

elimination method.

OR

c) Solve the system of equations

$$x + 2y + 3z = 4, 2x + 3y + 5z = 5, 3x + 4y + 6z = 12 \text{ by matrix inversion method.}$$



Code No. 4404

d) If $A = \begin{vmatrix} 2 & 3 & 4 \\ & & 5 \end{vmatrix}$ and $B = \begin{vmatrix} & & \\ & -4 & 2 \\ & & \end{vmatrix}$

) Define linear and non-linear correlation.

b) From the data given below find the number of items n , $\sum xy = 120$, $\sum x = 48$ if $\sum x^2 = 90$ where x and y are deviations from arithmetic average.

c) _____ **mules**

d) _____ **coed**

www.FirstRanker.com