16/12/11 A-IV-OK

Code No.: **6504**

FACULTY OF PHARMACY

B.Pharmacy I Year (Supplementary) Examination, December 2011

MATHEMATICS

Time : 3 Hours] [Max. Marks : 70

Answer **all** *questions.*
All questions carry equal marks.

1. (a) (i) If $\frac{\log 2^{n}}{4} \frac{\log 2^{b}}{6} \frac{\log 2^{c}}{3p}$ and $a^3b^2c = 1$, find the value of *P*.

(ii) If tanA =1 / 2 and tanB = 1 / 3, where A and *B* are acute angles then find A+B.

Or

(b) (i) If $2\log_x a + \log_{ax} a + 3\log_{a^2} xa = 0$, find *x*.

(ii) $\sin A.\sin(60+A)\sin(60 - A) = \frac{1}{4}\sin 3A$.

2. (a) (i) Find the derivative of the function cosax using first principle.

(ii) Show that $f(x) = \begin{cases} \frac{\cos cvc - \cos bx}{x^2} & \text{if } x \neq 0 \\ \frac{b^2 - a^2}{2} & \text{if } x = 0 \end{cases}$

where a and *b* are real constants, is continuous at 0.

(iii) Solve $\frac{dY}{dx} = \sin(x + y) + \cos(x + y)$.

Or

(b) (i) Show that $f(x) = \sin x(1 + \cos x)$ has a maximum value at $x = \pi/$

(ii) If $u = \text{Sec}^{-1}\left|\frac{x^3 - y^3}{x + y}\right|$ then show that

$$x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 2\cot$$

IP.T.O.

3. Find the value of

(ii) Evaluate $\frac{9\cos x - \sin x}{4\sin'' \pm 5\cos}$

(m) Evaluate .1 $\frac{e \; +}{GS^2 (Xe^x)}$ CIX-

'valuate $\frac{+\sin x}{x + \cos^x}$.

v ate $\frac{\sin 2x}{a \cos x + \; \&In\; X}$

(iii) Evaluate $\int \left(\frac{(x^6 - 1)}{1 + x^2} \right) dx$ for $x \in$

4. (a) (1) tha $+t0\text{-}1\text{-},b\text{:-..-}$ ti $lxt\text{-}th\ 17.\pm o$ h $P^4 P$ V

$$\begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$$ show that.

Or

b) Solve the following e GssJthii ffi

3x4 4y + Sz- 18
2x- y 84v= 13
5x-2ij# 7z=20

If 0 then hP-w

$$\begin{vmatrix} \cos & \cos * nil \\ cos0 \sin 0 & \end{vmatrix} \quad \begin{vmatrix} Ia\ 15\ SA & \cos 0 \sin 0 \\ os \quad in & \sin 20 \end{vmatrix} = 0$$

5. (a) (i) Find the equation of the line passing through (2, 0) (0, 3).

(ii) If a line makes an angle of 60° with positive x - axis, what is its slope.

(iii) Discuss the set of postulates defining Boolean Algebra.

Or

(b) (i) Write Boolean function to realize the full adder and draw the corresponding logic diagram.

(ii) Find the equation of the circle passing through the origin 0 (0,0) and the points (1, 2), (-1, -2)
