

Code No: R7-101-BP

Regular

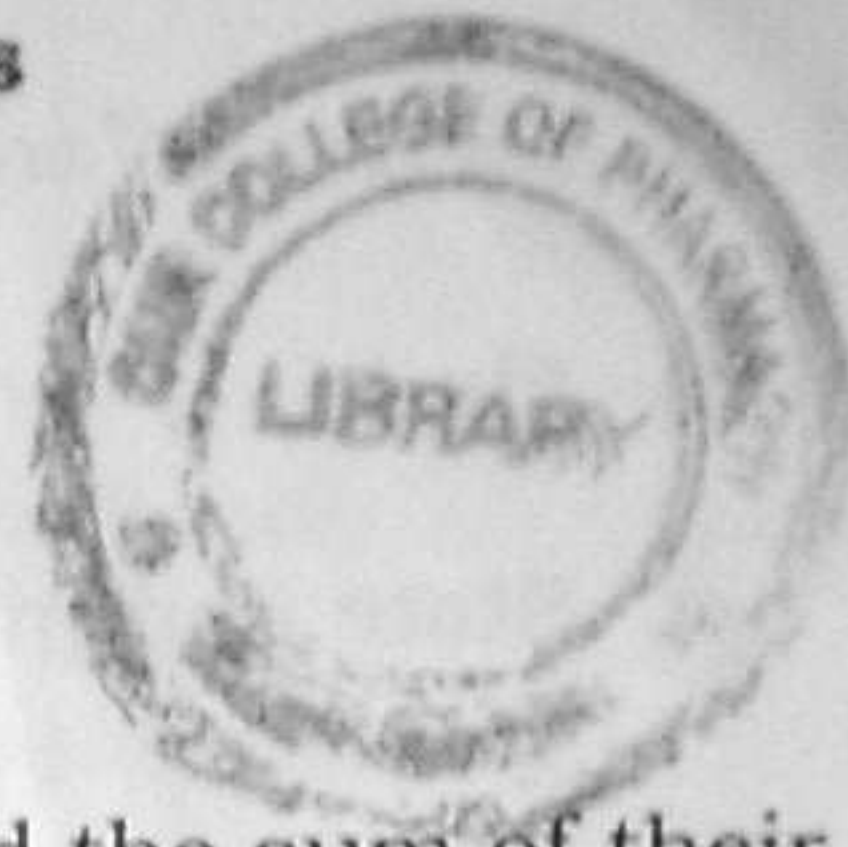
B. Pharmacy I Year Supplementary Examinations, June 2009  
REMEDIAL MATHEMATICS

Time : 3 hours

Max. Marks: 80

Answer any FIVE questions  
All questions carry equal marks

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1. a) Find the inverse of  $\begin{bmatrix} 2 & 5 & 3 \\ 3 & 1 & 2 \\ 1 & 2 & 1 \end{bmatrix}$

b) Find three numbers in A.P. whose sum is 24 and the sum of their cubes is 1968. [8+8]

2. a) If A, B, C are the angles of a triangle, prove that  $\cos \frac{A+B}{2} = \sin \frac{C}{2}$

b) Find all angles between  $0^\circ$  and  $720^\circ$  whose tangent is  $\frac{1}{\sqrt{3}}$ . [8+8]

3. a) Find coordinates of the point which divides externally the join of the pair of points: (4,7) and (1, -2) in the ratio of 3:2.

b) Find the equation of the straight line perpendicular to  $2x+3y+4=0$  and passing through (3, -2). [8+8]

4. a) Evaluate:  $\lim_{x \rightarrow 0} \frac{a^x - 1}{x}$

b) Discuss the differentiability of  $f(x) = \sqrt{x}$  at  $x=0$ . [8+8]

5. a) i) Find the differential coefficient of  $\frac{x^2}{(x^2 + a^2)^{\frac{3}{2}}}$

ii) Find the differential coefficient of  $x^2 e^x \sin^2 x$

b) In a plane triangle, find the maximum value of  $\cos A \cos B \cos C$ . [8+8]

6. a) Evaluate  $\int_2^4 \frac{x^3}{(1+4x)^4}$

b) Evaluate  $\int_0^{\frac{\pi}{2}} (3\sqrt{\sin \theta}) \cos^4 \theta d\theta$ . [8+8]

Cont...2

7. a) Solve  $\frac{dy}{dx} = e^{2x+3y} + 4x^2 e^{3y}$ .

b) Form the differential equation of simple harmonic motion given by  $x = B \cos(nt + c)$ . [8+8]

8. a) Find  $L \{e^{at} \cos bt\}$

b) Find  $L \left\{ t^2 + t^{\frac{3}{2}} + t \sin 3t \right\}$

c) State and prove First shifting theorem.

[6+6+4]

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