Code No: PH106

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
Pharm.D I Year Supplementary Examinations, October/November - 2019
REMEDIAL MATHEMATICS

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

Answer any five questions
All questions carry equal marks
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1.a) Find AB and BA where A= $\begin{bmatrix} -1 & 2 & 1 \\ 2 & 4 & -1 \\ 1 & 1 & 1 \end{bmatrix}$ and B= $\begin{bmatrix} 1 & 1 & 1 \\ -3 & 2 & 3 \\ -1 & 4 & 6 \end{bmatrix}$

b) Solve the following equations by using cramer's Rule.
x - 2y + 3z =2; 3x + 2y- z =12; 2x - y +3 z = 7 [7+7]

2.a) Prove that $\cot(A+15)-\tan(A-15)=\frac{4\cos 2A}{1+2\sin 2A}$

b) Prove that Cos $\frac{\pi}{9}$ Cos $\frac{2\pi}{9}$ Cos $\frac{3\pi}{9}$ Cos $\frac{4\pi}{9}$ = $\frac{1}{2^4}$ [7+7]

3.a) Find the equation of the line passing through the point (1, 1) and perpendicular to the line passing through the points (3, 5) and (-6, -2).

b) Find the equation of the circle whose centre is (5, 7) and radius 4. [7+7]

4.a) Find the differential coefficient of $y=xe^x+\sin x\log x$

b) Find the derivation of $\frac{x^2e^x}{\log x}$ [7+7]

5.a) If, $u=(x^2+y^2+z^2)^{-1/2}$, then show that $\frac{\partial^2u}{\partial x^2}+\frac{\partial^2u}{\partial y^2}+\frac{\partial^2u}{\partial z^2}=0$

b) If $\sin u=\frac{x^2y^2}{x+y}$ then prove that $x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial y}=3\tan u$ [7+7]

6.a) Evaluate $\int x^2e^xdx$

b) Evaluate $\int_0^{\frac{\pi}{2}}\frac{\sin xdx}{(\sin x+\cos x)}$ [7+7]

7. Solve the following differential equations
a) $(xy^2+x)dx+(yx^2+y)dy=0$
b) $\frac{dy}{dx}=\frac{x+y}{x}$ [7+7]

8.a) Find $L\left(5\sin t+2\sin 3t\right)$

b) Find $L\left[e^{-t}Sin^2t\right]$ [7+7]

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