SDM COLLEGE OF ENGINEERING AND TECHNOLGY, DHARWAD-02

Department of Mathematics

Sl.No	Write a program
1	To find the angle between the curves $r=4(1+cost)$ and $r=5(1-cost)$.
2	To find the radius of curvature of $r=asin(nt)$ at $t=pi/2$ and $n=1$.
3	To prove that the mixed partial derivatives, $U_{xy} = U_{yx}$ for $U=exp(x)(xcos(y)-ysin(y))$.
4	To prove that if $U=exp(x)(xcos(y)-ysin(y))$ then $U_{xx}+U_{yy} = 0$.
5	To prove that at $(1,-1,0)$, $J = 20$ if $u = x+3y^2-z^3$, $v = 4x^2yz$, $w =2z^2- xy$.
6	Expand $sin(x)$ as Taylor series about $x=Pi/2$ upto 3rd degree term. Also find $sin(100°)$.
7	Solve $\frac{dy}{dx}+y\tan x- y^3 \sec x = 0$
8	Examine the consistency of the following system of equation and solve if consistent. $x_1 + 2x_2 - x_3 = 1$; $2x_1+x_2+4x_3 = 2$; $3x_1 + 3x_2 + 4x_3 = 1$.
9	Obtain the Eigen values and Eigen vectors for the given matrix $\begin{vmatrix} 4 & 3 & 2 \\ 1 & 4 & 1 \\ 3 & 10 & 4 \end{vmatrix}$
10	Compute the numerically largest Eigen values of $P = \begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$ by power method.