**Dca6103 – FOUNDATION OF mathematics**

**SET I**

1. **Find the value of *a* if the function f(x) defined by**

****

**is continuous at **

**Sol:**

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1. **If**$siny=xsin(a+y)$**prove that**$\frac{dy}{dx}=\frac{sin^{2}(a+y)}{sina}$**.**

**Sol:**

$$\frac{siny}{sin(a+y)}=x$$

Differentiating both sides w.r.t *x*

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1. **Evaluate the following integral**

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**Sol:**cos2$θ$= 2cos2$θ-1$

**SET II**

1. **Solve the following system of equations by Matrix Method**

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**Sol:** $\left[\begin{matrix}1&2&1\\1&0&3\\2&-3&0\end{matrix}\right]\left[\begin{matrix}x\\y\\z\end{matrix}\right]= \left[\begin{matrix}7\\11\\1\end{matrix}\right]$

1. **(a) Find the and  if**

**Sol:**

$\left(2\hat{i}+6\hat{j }+27\hat{k}\right)X \left(\hat{i}+λ\hat{j }+μ\hat{k}\right)$= $\vec{0}$

⇒$\left[\begin{matrix}\hat{i}&\hat{j }&\hat{k}\\2&6&27\\1&λ&μ\end{matrix}\right]$ = $0\hat{i}+0\hat{j }+0\hat{k}$

**(b) Find  if at the point (1, -2, -1)**

**Sol:**

$6. $**(a) Find the values of a and b such that the function  is analytic. Also find **

**(b) If , determine  so that is analytic function of x+iy.**