

國立虎尾科技大學九十七學年度第一學期平時考(五)試題

班級:四電二乙 科目:工程數學(二) 時間:2008/12/9(星期二) 12:10-13:10

1. Calculate that $\det \begin{pmatrix} 10 & 1 & -6 & 2 \\ 0 & 3 & 3 & 9 \\ 0 & 1 & 1 & 7 \\ -2 & 6 & 8 & 8 \end{pmatrix}$.

2. Show that $\begin{vmatrix} 1 & \alpha & \alpha^2 \\ 1 & \beta & \beta^2 \\ 1 & \gamma & \gamma^2 \end{vmatrix} = (\alpha - \beta)(\beta - \gamma)(\gamma - \alpha)$.

3. Find the eigenvalues and eigenvectors of the given matrix $\begin{pmatrix} -1 & 2 \\ -7 & 8 \end{pmatrix}$.

4. Find the eigenvalues and eigenvectors of the given matrix

$$\begin{pmatrix} 12 & 1 & 1 & 1 \\ 1 & 12 & 1 & 1 \\ 1 & 1 & 12 & 1 \\ 1 & 1 & 1 & 12 \end{pmatrix}$$