Prabhu Jagatbandhu College
Department of Mathematics

(Assignment-1,Maths(Hons) 1st year,2015)

(Linear Algebra)

1. If A be a skew symmetric matrix of order n and P be an $n \times 1$ matrix then prove that $P^t AP = 0$
2. Prove any matrix A over C can be expressed uniquely as the sum of Hermitian and skew Hermitian matrix.
3. Write $A = \begin{pmatrix} 1 & 3 & 4 \\ 7 & 2 & 6 \\ 2 & 8 & 1 \end{pmatrix}$ as the sum of a symmetric matrix B and a skew symmetric matrix C.
4. Write $A = \begin{pmatrix} 3-5i & 2+4i \\ 6+7i & 1+8i \end{pmatrix}$ as the sum of a Hermitian matrix B and a skew Hermitian matrix C.
5. If A be a idempotent matrix of order n then show that $I_n - A$ is also idempotent matrix.
6. If AB=B and BA=A then show that A and B are both idempotent.
7. If $A = diag(4,-3,7)$ find $tr(A)$, A^3 *and* A^{-1}.

Date:

Prabhu Jagatbandhu College
Department of Mathematics
(Assignment-II,Maths(Hons) 1st year,2015)
(Linear Algebra)