Linear Algebra

CSE DEPT.

SET-2

1. Define basic and dimension of a vector space. Determine whether or not the following from a basic for the vector and .
2. Let and be the subspace of generated by and respectively find .
3. Let be independent vectors and subspace . Where the are scalars. Show that above representation of is unique.
4. Let and be linearly independent vectors. Prove that and are also linearly independent.
5. Suppose and are finite dimensional subspace of a vector .
6. Find the coordinate vector of relative to the basic 0, 0, 1).
7. Let be the victor space. The polynomials from a basis for . Let . Find .
8. Let {} and be the basis of a vector space . Suppose and Let be the matrix whose rows are coordinates vector of and respectively relative basis . Show that for any vector
9. Let be subspace of . Find a basic of dimension of .
10. Define linear independent vectors of a vector space. Determine whether the vector in are linearly dependent or independent.
11. Let be the vector space of symmetric matrices over show that .
12. Define sum of two subspace of a vector space of . Let and the subspace of vector space . Proof that is a subspace of .
13. Proof that the vector space is the direct sum of its subspace and if and only if
14. and
16. Let be the vector space of matrices over the field . Let and be the subspace of symmetric and antisymmetric matrices respectively. Show that .
17. Define linearly dependent set of vectors show that the vectors in are linear dependent.
18. Define basic of a vector space .show that the set of vectors is not a basic for the vectors space .