Question 1

1. Linear Transformation, T:U → V (transform) – is a function that carries element of a vector space U(domain) to vector space V(co-domain) and which has two properties

T(u1 + u2) = T(u1) + T(u2)

Ɐ u1, u2 ϵ U

T(αu) = αT(u)

Ɐ u ϵ U

1. Rank of a Matrix is defined as the maximum number of linearly independent column/row vectors in the matrix.

QUESTION 2

1 2 8

4 7 6

9 5 3

= 1 7 6 -2 4 6 + 8 4 7

 5 3 9 3 9 5

= 1 ( 21 - 30) – 2 (12 - 54) + 8 (20 - 63)

=-9 - 44 - 344

=- 397 ; Hence, it is non singular.

QUESTION 3

T : X → Y

X Y

e 2 T(f) = 6

f 4 T(h) = 10

g 6 T(l) = T(j) = 8

h T(k) = 4

l 8

j

k 10